



Lakeland®

Protect Your People™





Lakeland Industries Inc. is a multidivisional, publicly-held producer of quality, high-performance protective garments for industry in worldwide markets.

Headquartered in Ronkonkoma, New York since 1982, For over 35 years, Lakeland has been a supplier to a variety of industries, safely protecting workers in their environments. Our products include:

- Eyes Protection
- Respiratory Protection
- Limited Use Clothing
- Chemical Protective Clothing
- Flame Resistant Clothing
- Heat Resistant Clothing
- Firefighters Turnout Gear
- Arc Flash Protective Clothing
- Hands Protection
- Outdoor Winter Clothing

Lakeland's protective clothing products are proven on-the-job every day, and are specified routinely for workers in the chemical petrochemical, healthcare, automotive, glass, cement and other industries in which hazardous materials must be handled. These reliable and, therefore, popular lines are widely diversified, yet stand prominently on the common foundation of quality for which the Company is well-known and respected, and to which it continues to pledge its efforts.



MicroMax®, SafeGard®76, SafeGard®GP, Pyrolon®XT, Pyrolon®CRFR, ChemMAX®, Interceptor®Plus, ShurRite®, KutBuster®, DextraGard®, Grapolator®Thermbar®, Crocskins®, DesPro®, DesPro®Plus, Pyrolon®DTP, StatiSorb®, ClanScreen®, Frontier®, Code One®, Attack®, Sterling Heights®, Combat Lite® are registered trademarks of Lakeland industries Inc.



Chemical Protective Clothing

Applications and Certification Chart	02
Seam Methods	02
Use, Storage, Shelf-life and Disposal	03
Protection against Type 5 and 6 Hazards	04
Super-B Style for Type 5 and Type 6 Garments	05
SafeGard Series	06
Micromax Series	08
Understanding EN 14126 Standard	12
Protection Against Hazardous Chemicals	13
Super-B Style for Type 3 and Type 4 Garments	14
ChemMAX Series	15
Interceptor Plus Series	20
Chemical Protective Clothing Permeating Data	24
PermaSURE®	26
Why Use Pyrolon™?	27
Pyrolon Series	28
EPVC	32
Accessories	33
Cool Vest	34



Heat Protective Clothing

Heat Resistant Clothing	35
Firefighters Turnout Gear	46
Flame Resistant Clothing	55
Arc Flash Protective Clothing	61



High Visibility Clothing

High Visibility Clothing	68
--------------------------------	----



Eyes and Respiratory Protection

Respiratory Protection	70
Eyes Protection	74



Hands Protection






Standards of Protective Gloves	77
Chemical Resistant Gloves	78
Mechanic Protective Gloves	82
Cut Resistant Gloves	83



Chemical Protective Clothing

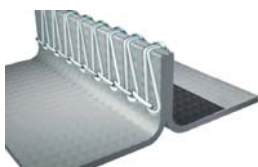


Applications and Certification Chart

Which garments are suitable for which applications and standards?  ChemMAX® 1EB achieves Type 3 only with zip flap securely taped up. Whilst the Micromax NS fabric is tested to EN 14126, we do not recommend garments with stitched seams for this type of protection.			Chemical Protection					Type 5 & 6 Protection				Type 4 Protection and Cool Suits					Chemical Protection with FR			
			ChemMax® 1	ChemMax® 2	ChemMax® 3	ChemMax® 4 Plus	Interceptor® Plus	SafeGard® GP	SafeGard® 76	Micromax® NS	Micromax® NS Trine	ChemMax® 1 EB	Micromax® TS	Micromax® Cool Suit	ChemMax® 1 Cool Suit	ChemMax® 3 Cool Suit	Pyrolon™ Plus 2	Pyrolon™ CRFR	Pyrolon™ CBR	Pyrolon™ TPCR
Hazardous Chemical Protection																				
Gas and Vapour Protection		(Type 1) EN943-1					✓													
Liquid Chemicals: Jet Spray Protection		(Type 3) EN14605	✓	✓	✓	✓												✓	✓	✓
Liquid Chemicals: (Shower-Type) Spray Protection		(Type 4) EN 14605	✓	✓	✓	✓						✓	✓		✓	✓		✓	✓	✓
Hazardous Dust Protection		(Type 5) EN 13982	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Liquid Chemicals: Aerosol Spray Protection		(Type 6) EN 13034	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Nuclear Industry: Protection against Radiation Contaminated Particles		EN1073-2	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Protection against Infective Agents																				
Protection against Infective Agents		EN 14126	✓	✓	✓	✓	✓					✓	✓		✓	✓				
Flame and Heat Protection																				
Protection against Heat and Flame		EN ISO 14116															✓	✓	✓	✓
Protection against Heat, Flame and Molten Metal Splash		EN 11612																		✓
Welding Industry		EN 11611																		✓
Protection against ARC flash		NFPA 70E																		✓
Anti-Static Properties																				
Anti-Static Clothing-Surface Resistance (<2.5x10 ⁹ ohms)		EN 1149-1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Anti-Static Clothing - Charge Decay		EN 1149-3																	✓	
Seam Type																				
Serged (Overlock Stitch)								✓			✓						✓			
Stitched and Bound									✓	✓				✓						
Stitched and Taped (Outer Side)			✓	✓	✓	✓						✓	✓		✓	✓		✓	✓	✓
Stitched and Taped (Both Sides)							✓													

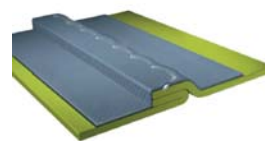
Seam Methods

Serged Seam



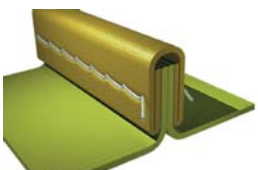
A serged seam joins two pieces of material with a thread stitch that interlocks. This is an economical stitching method for general applications. This stitching method is generally not used for chemical protective clothing. It is more commonly found on limited use clothing where dry particulates are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

Heat Sealed Seam



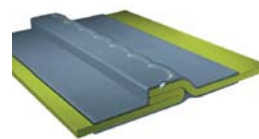
A heat sealed seam is sewn and then sealed with a heat activated tape. This method provides liquid proof seams, and is especially useful for Level A and B chemical protective clothing.

Sewn and Bound Seam



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

Heat Sealed Seam Plus



This is the 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.

Use, Storage, Shelf-life and Disposal

Use, Storage, Shelf-Life and Disposal

This guide provides advice on the selection of an appropriate chemical suit, suggesting some of the factors that may influence the selection decision. However, selection is often complex involving multiple and sometimes conflicting factors and may involve factors that Lakeland cannot predict.

The final decision on selection of a garment for a specific application is therefore always the users' responsibility.



Storage

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

Most of garments are supplied individually in vacuum packed PE bags and outer cardboard cartons. They can be stored in normal storage facilities. Keep dry and avoid direct sunlight and temperatures below -15°C.



Shelf-Life

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

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

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

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

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

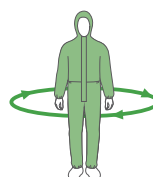


Use

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

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

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



Re-Use

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

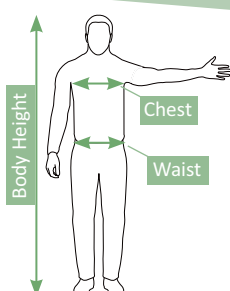
Note however that any fabric (regardless of whether it is classed as disposable or re-usable) that has been contaminated by a chemical will have a lower breakthrough time than when new. Contaminating chemicals may permeate into the fabric and cannot be removed by a decontamination shower or other cleaning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



Disposal

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

Garment Sizing



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

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

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



Clothing For Protection against Type 5 and 6 Hazards

Clothing for Type 5 & 6 protection

The 'Type' testing explains these protection types.

Type 5

EN 13982

protection against hazardous dry particles



EN 1073-2

protection against dust contaminated with radiation



Type 6

EN 13034

protection against reduced/light liquid sprays and splashes



Type 5- Hazardous Dry Particles

- Spray cabin filled with dust
- Subject performs exercise on treadmill
- 3 particle counters INSIDE the suit
- Particle "Inward leakage" calculated
- Recorded as % of inward leakage (TIL)



EN 1073-2

testing is a variation of the standard Type 5 test.

Type 6 - Reduced Liquid (aerosol) Spray

- Four nozzles - aerosol spray of liquid
- Subject rotates on turntable
- Inside absorbent suit checked for penetration
- Pass or Fail according to test criteria



Three types of fabric are used to make all Type 5 & 6 garments on the market.



Flashspun Polyethylene (FSPE)



SMS - Spunbond-Meltblown-Spunbond
Lakeland SafeGard™



Microporous Film Laminate (MPFL)
Lakeland MicroMax®

All Type 5 & 6 garments on the market are one of these or variations of these.



How do these fabrics compare? Three important factors can be considered:

Liquid Protection	Type 6 CE testing includes liquid repellency and penetration tests against four chemicals. In two of the four chemicals, Lakeland MicroMax® options achieve superior results than the closest alternative.	CE testing for Infectious Agents to EN 14126 includes tests against four types of contamination. In all four tests MicroMax® options achieve superior results and the highest class compared to the FSPE alternative, which is unclassified in the critical ISO 16604 test.
Physical Properties	Testing as part of CE certification allows comparison of strength properties: abrasion - tensile strength - trapezoidal tear etc. In comparisons of the three fabric types Lakeland SafeGard™ or MicroMax® options offer a superior choice compared to the alternative FSPE option in most cases.	
Comfort and Breathability	Comfort is primarily a result of air permeability.	
	Independent testing indicates the difference between MicroMax® and FSPE is minimal and close to zero. Both have very low air permeability. The Lakeland SafeGard™ option has an air permeability over 10 times that of the alternatives and is the superior choice for a comfortable garment.	A common sense approach and simple 'home' tests clearly confirm both the low air-permeability of MicroMax® and FSPE and the superior air-permeability of SafeGard™. Where protection AND comfort are required, Lakeland Cool Suit® options provide the best of both MicroMax® and SafeGard™ fabrics and may be the best choice available.

Type 5 and 6 garments can be selected on the basis of a combination of three factors:

1. Protection

2. Physical Properties

3. Comfort and Breathability

For all three factors - Lakeland garments provide the best choice

Design and Super-B Style for Type 5 and Type 6 Garments

Protective clothing is used in a wide variety of environments, situations and applications throughout a range of industries. Each one is different and each places garments under a unique set of stresses, strains and physical demands.

Yet most chemical protective clothing is made from polymers and non-woven materials which whilst having the benefit of being inexpensive, feature strength properties that are generally lower than their woven counterparts. So good design is vital in ensuring garments are built to cope with the various physical demands that might be placed on them.

Similarly, whilst comfort is primarily defined by the air permeability of the fabric, even a garment that is breathable will be uncomfortable if it is too tight, restricts movement or is poorly designed.

So effective ergonomic design is important in both maintaining the comfort of the wearer and in ensuring a garment lasts as long as required by the job.



Lakeland 'Super-B' Style

Lakeland CE garments use a specific ergonomically styled pattern that features a unique combination of three key factors, along with other helpful design elements.

1 Three-piece hood with shaped centre-piece

Some garments feature a simple 2-piece hood. Such hoods do not fit the head properly, restrict head movement and generally have a poor fit to respirator masks.

Lakeland garments not only feature a 3-piece hood which creates a more 3-D fit and resolves these problems, in addition the centre piece is a 'pointed oval' shape resulting in an even better fitting hood.

2 Inset Sleeves

Most garments use the traditional 'bat-wing' style sleeve, in which the body forms a diagonal between the elbow and the waist. This is cheaper to produce as it uses less fabric, but it also restricts movement when a user reaches up. It also explains why some garments need thumb loops – because it results in pulling back of the sleeve and cuff.

Lakeland garments use the more expensive inset sleeve in which the body and arm follows the shape of the body. This allows greater freedom when reaching up and results in much less pulling back of the sleeve – so no thumb loops are required.

** Many Lakeland garments are available in versions with thumb-loops where they are required for other reasons.*

3 Two-way zip and storm flap

Lakeland CE coveralls feature a two-way zip and storm flap front fastening for superior protection.

4 CE Chest Label

Lakeland CE coveralls feature a chest label containing all the legally required marking for CE certification, so users and supervisors can easily identify the correct garment is being worn.

5 Two-piece crotch gusset

The crotch is invariably the point where garments split first, partly because this is where most stress is apparent, and partly because on cheaper garments it is the point where four seams – two body and two leg - meet at one point.

Lakeland garments feature an inserted crotch gusset of two dart-shaped fabric pieces. This creates a more shaped body which spreads the stress and allows greater freedom of movement.



SAFEGard® GP



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

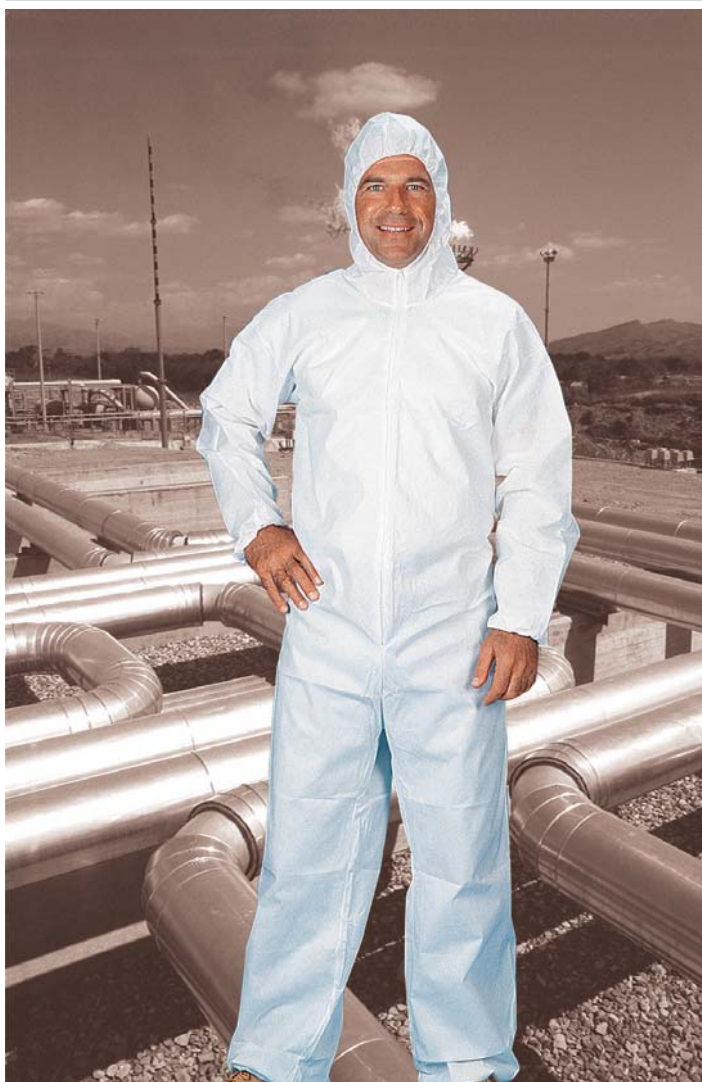
FEATURES

- SMS garments feature 3 tough layers to keep contaminants out.
 - The 2 outer layers are made with spun bounded filaments that stand up to tearing and abrasion.
 - The inner layer is of melt-blown polypropylene microfibers that filter out potentially harmful particulates and liquids.
- Breathability is the bonus, air and water vapor pass through for superior wearer comfort.
- Fabric features a high degree of softness and flexibility for comfort.

KEY APPLICATIONS

- ▶ Protection against hazardous dusts and light splashes of low hazard liquid chemicals.
- ▶ Asbestos dust protection.
- ▶ Insulation installation.
- ▶ Wood and metal processing.
- ▶ General maintenance and cleaning applications.
- ▶ General industrial use.

Physical Property	Test Method	Test Result
Basis Weight	ISO 3801:1997	50g/m ²
Abrasion Resistance (No of cycles)	EN530:1994 method 2	100-500cycles
Flex Cracking Resistance	EN ISO7854:1997 method B	10000
Tear Resistance (MD/CD)	ISO9073-4:1997	26.5N/25N
Puncture Resistance	EN863:1995	7.7N
Burst Strength	ISO13938-1:1999	112KPa
Resistance to hydrostatic pressure	EN20811:1992	1900mm
Seam Strength	EN ISO 13935-2:1999	80.5N
Electrostatic properties	EN1149-5:2008	5.59x10 ⁸ Ω



ESGP528W

SafeGard® GP Styles









528,Coverall
Coverall with hood,
elastic cuffs, waist
& ankles.



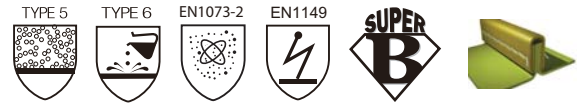
145, coat
Coat with
hood,
zipper
closure,
elastic cuffs &
waist.



301,Pants
Pants with
elastic waist
and ankles.

Product Style	Color	Seam Method	Sizes	Case Pack
ESGP528	White, Orange, Blue   	Serged Seam	S-XXXL	40
SMS145/SMS301	White, Orange, Blue   	Serged Seam	S-XXXL	25

SAFEgard® 76



SMMS428BE

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

FEATURES

- Manufactured from 4 layer polypropylene SMMS material offering improved particle barrier over 3 layer SMS.
- Fabric features a high degree of breathability, softness and flexibility for comfort.

KEY APPLICATIONS

- ▶ Protection against hazardous dusts and light splashes of low hazard liquid chemicals.
- ▶ Asbestos dust protection.
- ▶ Insulation installation.
- ▶ Wood and metal processing.
- ▶ General maintenance and cleaning applications.
- ▶ General industrial use.

Physical Property	Test Method	Test Result
Basis Weight	ISO 3801:1997	55g/m ²
Abrasion Resistance (No of cycles)	EN530:1994 method 2	6500
Flex Cracking Resistance	EN ISO7854:1997 method B	>10000
Tensile Strength (MD/CD)	EN ISO 13934-1:1999	99.6N/44.7N
Tear Resistance (MD/CD)	ISO9073-4:1997	47.6N/26.5N
Puncture Resistance	EN863:1995	6.1N
Burst Strength	ISO13938-1:1999	207KPa
Seam Strength	EN ISO 13935-2:1999	120.7N
Electrostatic properties	EN1149-5:2008	6.2x10 ⁻¹⁰ Ω

SafeGard® 76 Styles



428, Coverall
Coverall with hood,
elastic cuffs, waist
& ankles.



414, Coverall
Coverall with
hood and
attached boot,
elastic cuffs,
waist & ankles.



145, coat
Coat with
hood,
zipper
closure,
elastic cuffs &
waist.



301, Pants
Pants with
elastic waist
and ankles.



601 Apron
Attached ties.
Size: 71x91cm







850 Sleeve
Elastic ends
Size: 18" length



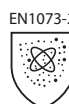
901 Shoe cover
904 Shoe cover
(PVC sole)



903 Boot Cover
905 Boot Cover
(PVC sole)
elastic top.

Product Style	Color	Seam Method	Sizes	Case Pack
SMMS428E/SMMS414E	White, Blue  	Bound Seam	S-XXXL	40
SMMS145/SMMS301	White, Blue  	Serged Seam	S-XXXL	25

MicroMAX® NS
MICROPOROUS PROTECTIVE CLOTHING SYSTEM



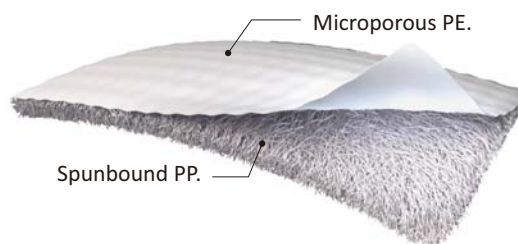
AMN428E

FEATURES

- Microporous polyethylene film laminate coverall with stitched seams, Microporous films feature a high liquid protection and dust barrier whilst allowing moisture vapour to escape through a high Moisture Vapour Transmission Rate (MVTR).
- MicroMAX® NS offers superior liquid and dust protection with good comfort and durability. Microporous film laminate combines superior protection with a comfortable, soft and flexible fabric.
- Biological penetration: Fabric has passed the US Test ASTM F1671-97a against penetration of micro-biological bacteria.

KEY APPLICATIONS

- ▶ Protection against light splashes of low hazard liquids and hazardous dry particles.
- ▶ Paint spraying (non-linting surface).
- ▶ Clean room (may require additional cleaning).
- ▶ General cleaning and maintenance applications.
- ▶ Asbestos removal and handling.
- ▶ Food processing applications.
- ▶ Protection against oils and resins.
- ▶ Pharmaceutical processing and manufacture.
- ▶ Electronic assembly (non-linting and anti-static).



Physical Property	EN Standard	Test Result
Basis Weight	ISO 3801:1997	55g/m²
Abrasion Resistance	EN 530:2010 Method 2	>100, <500
Flex Cracking	ISO 7854:1997 Method B	>15000, <40000
Flex Cracking (-30°C)	ISO 7854:1997 Method B	>4000
Tear Resistance (MD/CD)	EN ISO 9073-4:1997	53.51/30.98N
Burst Strength	EN ISO 13938-2:1999	50.7kPa
Tensile Strength (MD/CD)	EN ISO 13934-1:1999	82/49N
Puncture Resistance	EN 863:1995	9N
Electrostatic properties	EN1149-1:2006/EN1149-5:2008	Pass

Micromax® NS Styles



428,Coverall
Coverall with hood,
elastic cuffs, waist
& ankles.



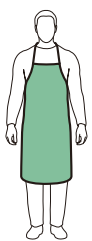
414,Coverall
Coverall with
hood and
attached boot,
elastic cuffs,
waist & ankles.



145, coat
Coat with
hood,
zipper
closure,
elastic cuffs &
waist.



301,Pants
Pants with
elastic waist
and ankles.



601 Apron
Attached ties.
Size:71x91cm



527 Smock
Long sleeve,
attached ties.
Size:71x91cm



713 Hood
Elastic face,
Covers
shoulders.



850 Sleeve
Elastic ends
Size: 18" length



901 Shoe cover
904 Shoe cover
(PVC sole)



903 Boot Cover
905 Boot Cover
(PVC sole)
elastic top.

Product Style	Color	Seam Method	Sizes	Case Pack
AMN428E/AMN414E	White, Orange, Green	Serged Seam	S-XXXL	40
AMN145/AMN301	White, Orange, Green	Serged Seam	S-XXXL	25

MicroMAX® NS
MICROPOROUS PROTECTIVE CLOTHING SYSTEM

Cool Suit



AMNC428E

FEATURES

- The back of the coverall features a large panel of highly breathable Safeguard 76 material-in blue for easy identification.
- This enables the suit to breath easily, making MicroMAX NS Cool Suit comfortable in the warmest of working environments.
- MicroMAX NS Cool Suit is constructed using blue bound seams for superior strength properties and improved particle and liquid repellency at the seams.

Highly breathable material in back



EMNCL428WIE



Coverall with hood, the back of the coverall above the shank is made of blue breathable Safeguard 76 material.



EMNC412



Coverall with collar, the back of the coverall is made of blue breathable Safeguard 76 material.

Product Style	Color	Seam Method	Sizes	Case Pack
AMNC428E	White ○	Bound Seam	S-XXXL	40
EMNCL428WIE	White ○	Bound Seam	S-XXXL	40
EMNC412	White ○	Bound Seam	S-XXXL	40

MicroMAX® **TRINE**
MICROPOROUS PROTECTIVE CLOTHING SYSTEM



FEATURES

- The MicroMax NS TRINE Type 5 & 6 protective coverall features a rear lanyard fold-away sleeve.
- Allows harness and lanyard to be worn inside coverall.
- Protects harness and lanyard from damaging liquids, paints and chemicals-reduces costs.
- Lanyard sleeve folds away neatly in rear pouch when not in use.
- Velcro fastened lanyard sleeve for easy fitting.
- Tested at SATRA fall-arrest rig: garment remains intact when a fall incident occurs, maintaining protection for wearer.



EMN428WH



MicroMAX® TS
MICROPOROUS PROTECTIVE CLOTHING SYSTEM



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

FEATURES

- Lightweight, disposable coverall for Type 4,5&6 applications. Stitched and taped seams provide full seal-no seam holes to allow penetration of dusts and liquids.
- Fabric tested for biological penetration using US test ASTM F1671-97a.
- Garment tested for infectious agents and biological hazards to standard EN14126.

KEY APPLICATIONS

- ▶ Mild low hazard chemical liquid splash, spray, drying and harmful dust protection.
- ▶ Contact with the patient when working with potentially infectious blood, body fluids, secretions role.



AMN428ETS

Product Style	Color	Seam Method	Sizes	Case Pack
AMN428ETS	White, Orange, Green	Heat Sealed Seam	S-XXXL	40
EMN428WH	White, Orange, Green	Serged Seam	S-XXXL	40

MicroMax®VP

Passes ASTM F1670/F1671



MVP428

Micromax® VP Styles



428, Coverall
Coverall with hood,
elastic cuffs, waist
& ankles.



414, Coverall
Coverall with hood
and attached boot,
elastic cuffs,
waist & ankles.

Bloodborne Pathogen and Chemical Protection

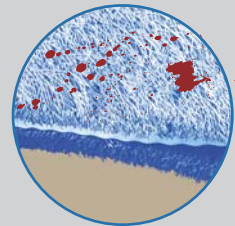
MicroMax®VP is specifically designed to protect when the risk of blood, body fluids, bloodborne pathogens and viral contamination are the greatest. Ideal for use in crime labs, crime scene clean up and by emergency response personnel, MicroMax®VP passes ASTM F1670/F1671 testing for blood and viral protection.

All MicroMax®VP garments are designed with a seamless front and feature a taped storm flap to provide more protection in the primary exposure area.

FEATURES

- Protective Hood.
- Seamless front eliminates 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.
- Available with attached boots to help prevent cross-contamination during an event

MicroMax® VP fabric construction creates a protective barrier between the wearer and possible bloodborne pathogen contaminants.



MicroMax®VP Fabric Properties

Test Method	Description	Result
ASTM D1777	Material Thickness	15 mil
ASTM D3776	Material Weight	80 g/m ²
ASTM D5034	Tensile Strength	161N/107N
ASTM D5034	Elongation	59%/71%
ASTM E96	Water Vapor Transmission Rate Procedure B	16g /m ² /24h
ISO 13938-1	Bursting Strength Hydraulic Method	29.4 psi avg.
CPSC16 CFR 1610	Burn Test 45°	PASS
EN 1149-1:2006	Surface Resistance Requirement for BS EN1149-5:2008 is ≤2.5 x 10 ⁹ Ω.	The test sample meets the requirement 2.4 X 10 ⁸

Liquid Penetration Test

Test Method	Description	Result
ASTM F1670	Liquid Penetration Using Synthetic Blood	PASS
ASTM F1671	Viral Penetration using φX174 bacteriophage suspension	PASS
ASTM F903	Liquid Penetration Test Method D	PASS
	Methanol	PASS
	Ethyl Acetate	PASS
	Sulfuric Acid (97%)	PASS
	Tetrahydrofuran	PASS
	Sodium Hydroxide	PASS
	Acetone	PASS
	Hydrofluoric Acid	PASS
	Acetonitrile	PASS

Product Style

MVP428/MVP414

Color

Blue 

Seam Method

Serged Seam

Sizes

S-XXXL

Case Pack

25

Understanding EN 14126 infectious agent protection

Protection against infectious agents is a vital issue - not only in medical applications such as in hospitals and accident attendance - but also in emergency response projects such as the Ebola relief effort during the major outbreak in 2014-15.



EN 14126

Garments for protection against bacteria, biological contaminants and infectious agents feature this pictogram on the label.

They will also be labelled using the appropriate chemical protection 'Type' with suffix letter 'B' as below:



Type 3-B



Type 4-B



Type 5-B



Type 6-B

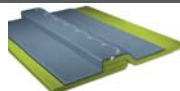
EN 14126 contains four relevant, classified tests *(and not five as some claim)*

Five tests are listed, but the first (ISO 16603) is purely used to indicate a starting point for conducting the 'real' test for protection against infected blood and body fluids, ISO 16604.

The classification table for this relates ONLY to the ISO 16604 test; there is NO CLASSIFICATION for EN 16603 and claiming such classification is meaningless; it is not a test that indicates any proof of protection.

Construction and Seam Requirements

EN 14126 makes no other seam or construction requirements beyond those standard in the different garment types - Type 3, Type 6 etc.



However, we would recommend that all garments for use in applications involving biological or infectious agents should be **at least** Type 4 and be constructed with sealed seams to ensure no penetration can occur through the stitch holes that are inevitable with any stitched seam garment. This might be critical in applications involving highly dangerous viruses such as Ebola.

The importance of donning and doffing

Donning and especially doffing of a suit is vital in all chemical protective applications - but especially so in infectious agent protection.

When operatives emerge from a critical area they cannot yet relax. The outside of the garment may be contaminated with infected liquids and great care must be taken not to touch any infected area; gloves must be the last to be removed and garments should ideally be removed by a suitably protected colleague, 'peeling' from the top down so any contamination on the outside ends up on the inside of the removed suit bundle.



Tests listed in EN 14126

Standard	Description	Classes	Comments
ISO/ FDIS 16603	Screening test for ISO 16604 test	None	Uses synthetic blood to indicate the pressure at which strike-through is likely to occur in preparation for The ISO/FDIS 16604 test. This test does not indicate any level of protection.
ISO/ FDIS 16604	Protection against blood and body fluids	1 to 6 (6 is highest)	Uses a bacteriophage to measure the pressure at which a body fluid such as blood will penetrate through the fabric. Class 6 is equivalent to passing the test under a pressure of 20kPa.
ISO/ DIS 22610	Protection against mechanical contact with contaminated surfaces	1 to 6 (6 is highest)	Measures the protection against mechanical contact with contaminated surfaces by a light mechanical rubbing of the fabric. Class 6 corresponds to no penetration after 75 minutes.
ISO/ DIS 22611	Protection against biologically contaminated aerosols	1 to 3 (3 is highest)	Measures protection against penetration by a contaminated aerosol spray. Level 3 corresponds with a penetration of less than 0.001%.
ISO/ DIS 22612	Protection against contaminated solid particles	1 to 3 (3 is highest)	Measures penetration of particles by dusting a fabric sample held on a vibrating plate with a small amount of contaminated powder. Class 3 is the equivalent of less than 10 particles penetrating.

The above four tests (excluding the first listed which is not an indicative test) indicate a garment fabric's effectiveness in resisting penetration of bacterial contaminants in various hazard types - contaminated blood, contaminated particles, aerosols etc - giving a classification for each of 1 to 6 or 1 to 3.

For users, it is important not just to confirm a garment is certified to EN 14126, but also to assess the classification of different tests according to the requirements of their specific application - such as in the examples shown:-

Application Example	Critical Test within EN 14126
Emergency Relief effort for Ebola Outbreak - Front line medical staff	With a highly dangerous bacteria transmitted in blood and body fluids it is critical to select a garment that achieves a high class in ISO 16604 test.
Hospital Cleaning staff - involved in cleaning contaminated surfaces and equipment.	Subject to the biological hazard, a high class in the ISO 22610 test might be appropriate.

Clothing For Protection Against Hazardous Chemicals

Clothing For Protection Against Hazardous Chemicals



**Type 4
EN 14605**
protection against
sprays of hazardous
liquids



**Type 3
EN 14605**
protection against
jet sprays of hazardous
liquids



**Type 1
EN 943-1**
protection against
hazardous vapours
and gases



Type 4 Garments:
ChemMax® 1 EB
MicroMax® TS
ChemMax® Cool Suits

Type 3 & 4 Garments:
ChemMax® 1
ChemMax® 2
ChemMax® 3
ChemMax® 4 **PLus**
Pyrolon™ CRFR, CBFR, TPCR

Type 1 Garments:
Interceptor® Plus

Consider three key factors when selecting the most appropriate clothing for an application

1. The chemical

- 'Breakthrough time' provided by (EN 6529 or ASTM F739) permeation tests can be used for comparison of fabrics but provides no information about how long you are safe.
- Consider the hazard presented by the chemical:
How toxic is it?
Is it harmful in very small quantities?
Is it carcinogenic or causes long term harm in other ways?
- Is the application performed in a warm temperature? (permeation rates increase at higher temperatures). What effect does temperature have on the safe use time?
- Calculate a maximum safe use time using permeation rates, temperature & chemical toxicity.

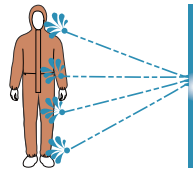
Use

PermaSURE®

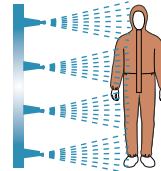
to calculate safe-use times
for Lakeland chemical suits
**ChemMax® 3, ChemMax®
4 Plus and Interceptor®
Plus.**

2. Which hazard / spray type?

- Protection against gases and vapours may require a Type 1 gas-tight suit such as Interceptor® Plus
- The type of spray in the application indicates whether a Type 3, 4 or 6 garment is required.
- However, with a highly toxic chemical even if the spray type indicates a Type 6 garment, a higher level of protection might be appropriate.



Type 3
Strong jet sprays



Type 4
Shower sprays

Approximately 80% or more applications in the market are Type 4 and not Type 3.

Type 3 or Type 4?

Determining that the application is Type 4 rather than Type 3 means selecting more comfortable options such as a **ChemMax® Cool Suit.**

3. Physical / environment factors

- A variety of factors relating to the task and where it is performed can influence the choice of garment.
- Three groups of factors can be considered.

Factors relating to :

The Task

For example:
Kneeling / crawling?
Climbing?
Confined space?
Mobility?



The Environment

For example:
Visibility?
Moving vehicles?
Sharp edges?
Heat or flames?
Warm conditions?
Explosive atmosphere?



Others

For example:
Co-ordination with other PPE?
Training required?
Donning and doffing?
Regulatory issues?



All such factors may influence the choice of fabric and garment design: (physical properties, colour, noise level and additional properties such as flammability).

CE standard physical tests can be used to assess comparative performance in terms of durability using abrasion resistance, tear strength etc.

Design and Super-B Style for Type 3 and Type 4 Garments

Protective clothing is used in a wide variety of environments, situations and applications throughout a range of industries. Each one is different and each places garments under a unique set of stresses, strains and physical demands.

Yet most chemical protective clothing is made from polymers and non-woven materials which whilst having the benefit of being inexpensive, feature strength properties that are generally lower than their woven counterparts. So good design is vital in ensuring garments are built to cope with the various physical demands that might be placed on them.

Similarly, whilst comfort is primarily defined by the air permeability of the fabric, even a garment that is breathable will be uncomfortable if it is too tight, restricts movement or is poorly designed.

So effective ergonomic design is important in both maintaining the comfort of the wearer and in ensuring a garment lasts as long as required by the job.



Lakeland 'Super-B' Style

Lakeland CE garments use a specific ergonomically styled pattern that features a unique combination of three key factors, along with other helpful design elements.

1 Three-piece hood with shaped centre-piece

Some cheaper garments feature a simple 2-piece hood. Such hoods do not fit the head properly, restrict head movement and generally have a poor fit to respirator masks.

Lakeland garments not only feature a 3-piece hood which creates a more 3-D fit and resolves these problems, in addition the centre piece is a 'pointed oval' shape resulting in an even better fitting hood.

2 Two-piece crotch gusset

The crotch is invariably the point where garments split first, partly because this is where most stress is apparent, and partly because on cheaper garments it is the point where four seams – two body and two leg – meet at one point.

Lakeland garments feature an inserted crotch gusset of two dart-shaped fabric pieces. This creates a more shaped body which spreads the stress and allows greater freedom of movement.

3 Inset Sleeves

Most garments use the traditional 'bat-wing' style sleeve, in which the body forms a diagonal between the elbow and the waist. This is cheaper to produce as it uses less fabric, but it also restricts movement when a user reaches up. It also explains why some garments need thumb loops – because it results in pulling back of the sleeve and cuff.

Lakeland garments use the more expensive inset sleeve in which the body and arm follows the shape of the body. This allows greater freedom when reaching up and results in much less pulling back of the sleeve – so no thumb loops are required.

4 Cushioned Knee-Pads

ChemMax® garments and some Cool Suits® feature double-layer cushioned knee-pads which add comfort and durability in applications where crawling or kneeling is required.

5 Double zip and storm flap

ChemMax® garments feature a double zip with handy ring-pulls and double storm flap front fastening for superior protection.

6 Higher neck line

For improved neck protection and better respirator mask fit.

7 CE Chest Label

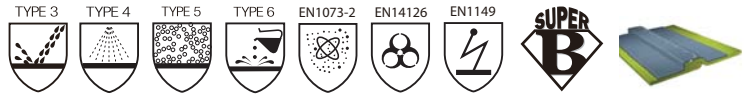
Lakeland CE coveralls feature a chest label containing all the legally required marking for CE certification, so users and supervisors can easily identify the correct garment is being worn.

8 Push-Lock® glove connection system

All Lakeland chemical suits feature cuffs designed to work with the Push-Lock® glove connection system which provides a fully sealed, Type 3 tested connection with most chemical gloves.



ChemMAX® 1



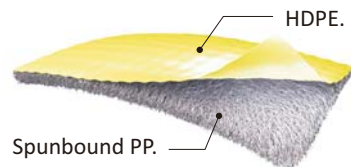
CT1S428

FEATURES

- High density polyethylene film barrier laminated to spunbond polypropylene Substrate.
- Constructed with stitched and taped seams for superior protection and strength.
- Design features double zips / storm flap front fastening for improved protection and quick and easy donning and removal.
- Lightweight and flexible material for optimum comfort and protection.
- Reinforced knee-pads for comfort & durability.
- Bright yellow color for easy identification.

KEY APPLICATIONS

- ▶ Tank cleaning and liquid chemical storage vessel cleaning.
- ▶ Pressure spray applications.
- ▶ Agricultural spraying and agricultural chemical applications.
- ▶ Chemical spill Handling.
- ▶ Acid and Alkali handling.



Physical Property	Test Method	Test Result
Basis Weight	ISO 3801:1997	87g/m ²
Abrasion Resistance (No of cycles)	EN530:1994 method 2	100-500
Flex Cracking Resistance	EN ISO7854:1997 method B	1000-2500
Tensile Strength (MD/CD)	EN ISO 13934-1:1999	120N/73N
Tear Resistance (MD/CD)	ISO9073-4:1997	81.5N/43.6N
Puncture Resistance	EN863:1995	13N
Burst Strength	ISO13938-1:1999,50cm ²	63.7KPa
Seam Strength	EN ISO 13935-2:1999	170N
Electrostatic properties	EN1149-1:2006/EN1149-5:2008	Pass

ChemMAX® 1 Styles



428/528, Coverall
Coverall with hood,
elastic cuffs, waist
& ankles.
Double front zip
fastening,
cushioned
kneepads.



414, Coverall
Coverall with
hood and
attached boot,
elastic cuffs,
waist & ankles.
Double front
zip fastening,
cushioned
kneepads.



145, coat
Coat with
hood,
zipper
closure,
elastic cuffs &
waist.



301, Pants
Pants with
elastic waist
and ankles.



025, Apron
Attached ties.
Size: 122x96cm



019, Smock
Long sleeve,
attached ties,
Size: 135x79cm



021, Cape hood
with rear inlet
pigtail,
PVC face shield.





101, Lab coat
Snap closure,
2 pockets,
long sleeve.



024, Sleeve
Elastic ends
Size: 18" length



903, Boot Cover
905, Boot Cover
anti-skid PE
sole, elastic
top.

Product Style	Color	Seam Method	Sizes	Case Pack
CT1S428/CT1S414	Yellow 	Heat Sealed Seam	S-XXXL	10
CT1S145/CT1S301	Yellow 	Heat Sealed Seam	S-XXXL	25

ChemMAX® 1 Cool Suit



CT1SCF428

The ChemMax® 1 Cool Suit uses the unique Type 4 Cool Suit® design with Lakeland's lightweight and flexible ChemMax® 1 chemical suit fabric to produce a chemical splash suit that features improved comfort over standards chemical suits.

FEATURES

- ChemMax® 1 coverall with a breathable rear panel covered by a ChemMax® 1 flap sealed at top and sides and with an open overlapped flap at the bottom to allow free circulation of air inside and outside the suit.
- Yellow fabric with green seams and rear panel for easy identification.
- The 'bellows effect' assists in ensuring effective circulation of air.
- Stitched and taped seams for effective protection.
- Fabric is light and flexible to improve comfort further.
- Suitable for protection against a broad range of hazardous chemicals in applications with Type 4 splashes and sprays*.

* Note : ChemMax® Cool Suits are for Type 4 applications only. The covered breathable rear panel has a much lower chemical barrier than the main body fabric and so the garment should not be used in any application where there is a possibility of a chemical being sprayed or splashed under the rear flap.

ChemMAX® 1 EB





CT1SL428EB

Lightweight Type 4 chemical suit ideal for tank cleaning, spray cleaning and infectious agent protection - 78gsm.

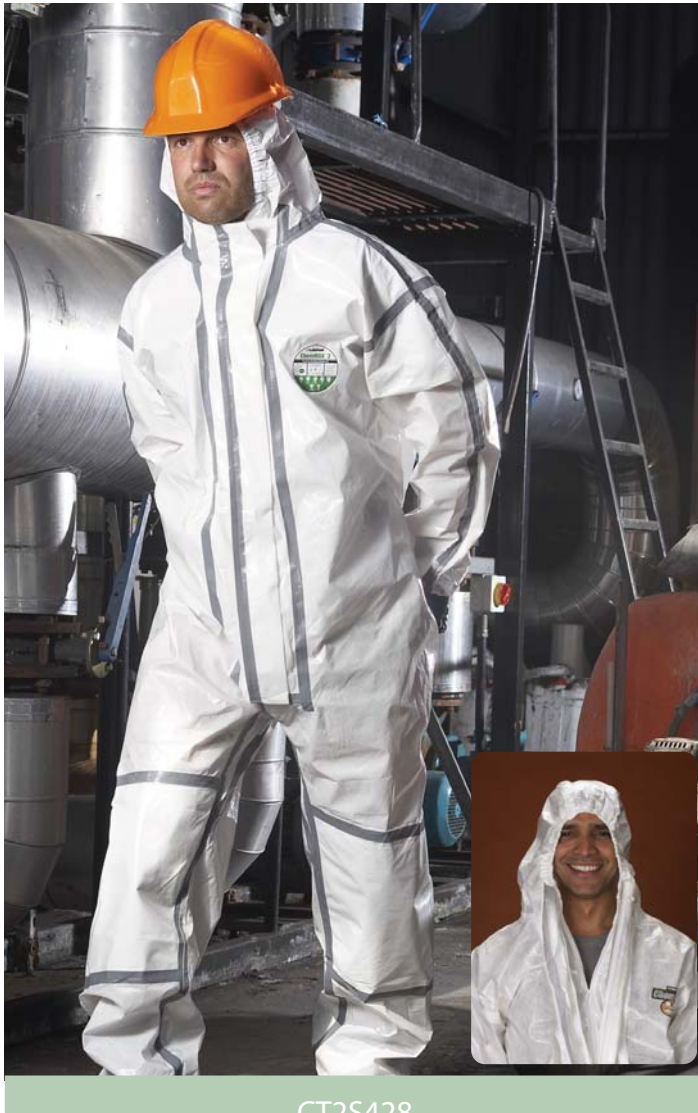
FEATURES

- Very lightweight, soft and flexible fabric.
- Low noise level - improved comfort and safety.
- Cost effective Type 4 chemical protection. (Type 3 with additional tape on flap)
- Infectious Agent Barrier - passes at highest classes in all four EN 14126 bio-hazard tests (this version was used extensively by UK Government health workers in 2015 West African Ebola Crisis).
- Thumb loops to secure sleeves.

ChemMax® 1EB achieves Type 3 only with the zip flap securely taped up.

Product Style	Color	Seam Method	Sizes	Case Pack
CT1SCF428	Yellow 	Heat Sealed Seam	S-XXXL	10
CT1SL428EB	Yellow 	Heat Sealed Seam	S-XXXL	10

ChemMAX® 2



CT2S428

FEATURES

- Saranex®23P barrier film bonded to a flexible bi-component spunbonded substrate provides excellent chemical protection in a soft and flexible fabric.
- Constructed with stitched and taped seams for superior protection and strength.
- Design features for double zip / storm flap front fastening for improved protection and quick and easy donning and removal.
- Lightweight and flexible material for optimum comfort and protection.
- Reinforced knee-pads for comfort and durability.
- Saranex® film provides excellent protection with strength and flexibility for durability and comfort.
- White color for easy identification.
- ChemMAX 2 is an excellent alternative to the more expensive types of suit available.

KEY APPLICATIONS

- ▶ Hazardous chemical handling.
- ▶ Industrial demolition applications.
- ▶ Pressure spray applications.
- ▶ Waste disposal.
- ▶ Chemical spill handling.

Physical Property	Test Method	Test Result
Basis Weight	ISO3801:1997	148g/m²
Abrasion Resistance	EN530:2010 method 2	> 2000
Puncture Resistance	EN863:1995	24N
Flex Cracking Resistance	ISO7854:1997 method B	> 2500, < 5000
Burst Strength	EN ISO 13938-2:1999	145kPa
Tensile Strength (MD/CD)	EN ISO 13934-1:1999	300N/150N
Tear Resistance (MD/CD)	EN ISO 9073-4:1997	193.98N/92.09N
Seam Strength	EN ISO 13935-2:1999	148.3N
Electrostatic properties	EN1149-1:2006/EN1149-5:2008	Pass

ChemMAX® 2 Styles



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



414, Coverall
Coverall with hood
and attached boot,
elastic cuffs,
waist & ankles.
Double front
zip fastening,
cushioned
kneepads.



145, coat
Coat with
hood,
zipper
closure,
elastic cuffs &
waist.



301, Pants
Pants with
elastic waist
and ankles.



712 Cape hood
with rear inlet
pigtail,
PVC face shield.

Product Style	Color	Seam Method	Sizes	Case Pack
CT2S428/CT2S414	White ○	Heat Sealed Seam	S-XXXL	10

ChemMAX® 3



CT3S428

Limited use coverall made using multi-layer composite technology featuring a proprietary barrier film laminated SBPP to enable an effective high barrier to a wide range of hazardous chemicals.

PermaSURE

FEATURES

- EVOH barrier film provides the ultimate chemical barrier film in disposable materials.
- Constructed with stitched and taped seams for superior protection and strength.
- Design features for double zips / storm flap front fastening for improved protection and quick and easy donning and removal.
- Despite the high chemical barrier, ChemMAX 3 material is surprisingly soft flexible and light.
- Reinforced knee-pads for comfort and durability.
- Grey color for easy identification.

KEY APPLICATIONS

- ▶ High hazard chemical applications.
- ▶ Hazardous waste disposal.
- ▶ Industrial demolition applications.
- ▶ Petrochemical plant applications.
- ▶ Chemical spill handling.
- ▶ Military applications requiring chemical protection or protection against chemical warfare agents.

Physical Property	Test Method	Test Result
Basis Weight	ISO3801:1997	165g/m²
Abrasion Resistance	EN530:2010 method 2	> 2000
Puncture Resistance	EN863:1995	18N
Flex Cracking Resistance	ISO7854:1997 method B	> 15000
Burst Strength	EN ISO 13938-2:1999	112.3kPa
Tensile Strength (MD/CD)	EN ISO 13934-1:1999	170N/110N
Tear Resistance (MD/CD)	EN ISO 9073-4:1997	134.44N/72.7N
Seam Strength	EN ISO 13935-2:1999	165.3N
Electrostatic properties	EN1149-1:2006/EN1149-5:2008	Pass

ChemMax 3® Styles



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



414, Coverall Coverall with hood and attached boot, elastic cuffs, waist & ankles. Double front zip fastening, cushioned kneepads.



430 Coverall "Plus" version with attached boot flap and double cuffs.



145, coat Coat with hood, zipper closure, elastic cuffs & waist.



301, Pants Pants with elastic waist and ankles.

ChemMAX® 3 Cool Suit



The ChemMax® 3 Cool Suit uses the unique Type 4 Cool Suit® design using Lakeland superior protection ChemMax® 3 chemical suit fabric to produce a high barrier chemical splash suit that features improved comfort over standard chemical suits.

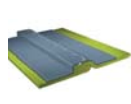
FEATURES

- ChemMax® 3 coverall with a breathable rear panel covered by a ChemMax® 3 flap sealed at top and sides and with an open overlapped flap at the bottom to allow free circulation of air inside and outside the suit.
- Grey fabric with orange seams and knee pads and rear panel for easy identification.
- The 'bellows effect' assists in ensuring effective circulation of air.



Product Style	Color	Seam Method	Sizes	Case Pack
CT3S428/CT3SCF428/CT3S414	Grey, Orange	Heat Sealed Seam	S-XXXL	10
C3T-A145/C3T-A301	Grey, Orange	Heat Sealed Seam	S-XXXL	25
CT3S430/CT3S400/CT3S450	Grey, Orange	Heat Sealed Seam	S-XXXL	1

ChemMAX® 4 Plus



Throat Tab

Double zipper with double flap

CT4SY428PS

This line of high performance chemical protection can be used in work environments where hazardous contaminants may be present. ChemMax 4 Plus is at the top of the ChemMax line of clothing. ChemMax 4 Plus features a multi-layer protective barrier that will stand up to the toughest of hazardous chemical.

PermaSURE

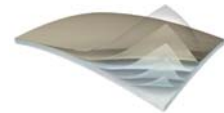
FEATURES

- High barrier – handles the more “difficult” chemicals.
- Taped seams for full seal.
- Tough and resilient fabric – multi-use if uncontaminated and undamaged
- Lighter fabric for better comfort.
- Design features double zips / storm flap front fastening for improved protection and quick donning and removal, 3-piece hood for improved fit.
- Reinforced knee-pads for comfort & durability.

KEY APPLICATIONS

- ▶ Very high chemical barrier
- ▶ Petrochemical and refining applications
- ▶ Chemical handling and distribution
- ▶ Chemical clean-ups and spill management
- ▶ Contaminated land clearance

Multi-Layer protective barrier that will stand up to the toughest of hazardous chemical.



Physical Property	Test Method	Test Result	EN Class
Tensile Strength	EN 13934-2	218/150 N	3
Abrasion Resistance	EN 530	2000 Cycles	6
Puncture Resistance	EN 863	15.4 N	2
Burst Strength	EN 13938	-	NT
Flex Cracking	ISO 7854	1000 Cycles	1
Flex Cracking -30°C	ISO 7854	200 Cycles	2
Trapezoidal tear md/cd	ISO 9073	101/87 N	4
Trapezoidal tear-mean	ISO 9073	90 N	4
Resistance to Ignition	EN 13274-4	-	Pass
Seam Strength	EN 13935	125 N	4

ChemMAX® 4 Plus Styles



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



414, Coverall
Coverall with
hood and
attached boot,
elastic cuffs,
waist & ankles.
Double front
zip fastening,
cushioned
kneepads.





430 Coverall
“Plus” version
with attached
boot flap and
double cuffs.



400 Level B
encapsulated suit
Rear entry, PVC
face shield.
Flat back, which
can connect the
air tube.



450 Level B
encapsulated
suit
Rear entry, PVC
face shield.
Expanded back
for SCBA.

Product Style	Color	Seam Method	Sizes	Case Pack
CT4S428PS/CT4S414PS/CT4S430PS/CT4S450PS/CT4S400PS	Yellow, khaki  	Heat Sealed Seam	S-XXXL	1

Interceptor® Plus

Powered by PermaSURE®



ICP6400

Interceptor® Plus is Lakeland's gas-tight, Type 1a chemical protective coverall. It should be used with an internally worn SCBA for full protection against a wide range of hazardous chemicals in liquid, gaseous and vapour form.

PermaSURE

FEATURES

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

EN 6529 Chemical Permeation Test Results

Chemical	CAS No.	CE Class
Acetone	67-64-1	6
Acetonitrile	70-05-8	6
Carbon Disulphide	75-15-0	6
Dichloromethane	75-09-2	6
Diethylamine	209-89-7	6
Ethyl Acetate	141-78-6	6
n-Hexane	110-54-3	6
Methanol	67-56-1	6
Sodium Hydroxide (40%)	1310-73-2	6
Sulphuric Acid (96%)	7664-93-9	6
Tetrahydrofuran	109-99-9	6
Toluene	95-47-6	6
Chemical-gas		
Ammonia 99%	7664-41-7	6
Chlorine 99.5%	7782-50-5	6
Hydrogen Chloride (99%)	7647-01-0	6

EN 6529 measures the time until the rate of permeation of the chemical through the fabric reaches 1.0µg /min/cm², defined as the "Normalised Breakthrough". This is NOT an indication of safe-use time or that a wearer is safe wearing the suit in any specific application. "Safe-use" times can be calculated or see PermaSURE®.

See the web site for more chemicals tested.

Physical Properties

Property	EN Standard	CE Class
Abrasion Resistance	EN 530	6
Flex Cracking	ISO 7854	2
Trapezoidal Tear	ISO 9073	6
Tensile Strength	EN 13934	4
Puncture Resistance	EN 863	2
Seam Strength	EN 13935-2	6

Interceptor® Plus Styles



Basic Style Options
 INT640 - Front entry / standard width visor
 INT650 - Rear entry / standard width visor
 INT640W - Front entry / wide vision visor
 INT650W - Rear entry / wide vision visor

Available in: Blue Yellow Orange

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

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

Chemical Warfare Agents

Interceptor® Plus has been tested independently against permeation by common chemical warfare agents according to the FINABEL test method. (1 x 50 µg / 37°C / 24H)

Agent	Acronym	No of tests	Fabric result hours:min	Seam result hours:min
Sulfur mustard	HD	3	>24:00	>24:00
Lewisite	L	3	>24:00	>24:00
V-Agent	VX	3	>24:00	>24:00
Sarin	GB	3	>24:00	>24:00
Tabun	GA	3	>24:00	>24:00
Soman	GD	3	>24:00	>24:00

Note: that testing has been conducted against the Interceptor® Plus fabric and the seam. In the tests, the challenge was made against the seam with 50% of the fabric only and 50% on the seam. As can be seen no permeation was recorded in 24 hours across 3 tests on each agent.

Product Style

Color

Seam Methods

Sizes

Case Pack

ICP640/ICP640W

Orange, Yellow, Blue



Heat Sealed Seam Plus

S-XXXL

1

Interceptor® Plus

Design features

Fully sealed to the external environment, the Interceptor® Plus coverall is worn with SCBA inside the suit - a generous backpack allows use of most portable breathing apparatus. Interceptor® Plus includes as standard a number of design features making it the best choice for gas-tight protection available.



Unique and patented "etched" sealing system for more secure seal between visor and garment fabric.

Rear pouch for accommodation of internal SCBA

122cm gas-tight zip with front-entry or rear-entry options.

Double layer face shield:
Outer-0.25mm Teflon
Inner - 1.00mm PVC
Offers superior chemical barrier with flexibility

Standard (42cm) or wide-vision (63cm) visor options.

Two protected rear mounted exhaust valves: one at the back and one at rear of hood.

Two layer glove system: inner chemical barrier glove and outer Butyl glove - bonded together for improved comfort

Soft and flexible 365gsm multi-layer fabric... the unique combination of polymers results in a high barrier to a wide range of chemicals.

Stitched and double taped seams, inside and out.

Attached sock with boot overlap.

- Anti-mist wipes supplied with each garment.
- All Interceptor® Plus suits undergo an **internal pressure test** to confirm suit is gas-tight before leaving the factory as part of the final quality assurance check.

Lakeland sales staff will also conduct training on donning & doffing and conducting internal pressure tests for your staff on delivery of your initial Interceptor® Plus suits.

Interceptor® Plus works with:

PermaSURE®

Safe-Use Time Toxicity Modeller
Contact Lakeland for more details.

INTERCEPTOR® PLUS



ICP645A

Fully Encapsulated Gas-Tight Suit For Thermal Protection

ICP645A gas-tight suit is designed for chemical flash fire protection FOR ESCAPE ONLY in the event of a chemical flash fire. It offers three-way protection- broad chemical holdout, plus flame resistance and radiant heat protection for the additional hazards encountered in a chemical flash-fire.

FEATURES

- Outer layer is aluminized fiberglass which can protect against above 95% heat emission; inner layer is level A gas-tight chemical protective coverall;
- Fully encapsulated front entry gas protective suit (Level A), expanded back;
- Sealed seam plus inside and out, 48" zipper, double storm flap with hook and loop closure;
- 2 layers face shield (0.25mm Teflon/1.00mm PVC);
- Include the glove system, 2 exhaust valves, attached sock boots with boot flaps, 15" waist belt with 3 belt loops sewn (inside) and sealed. Storage bag included.

Aluminized Fiberglass Fabric:

The outer layer fabric is aluminized fiberglass fabric, 375gsm weight and 0.3mm thickness, which provides highly effective heat and flame resistance property.

Physical Property	Test Method	Test Result
Breaking Strength(Warp/Fill)	ASTM D5034	1557 N/1112 N
Tear Strength(Warp/Fill)	ASTM D1424	CNM N/44 N
Flame Resistance (After flame/Char length)	ASTM D6413	1 S/1.3 cm
Radiant Reflectivity	MIL-C-24929A	10 S

ACCESSORIES



ICP491: Rear Entry ICP497: Front Entry
Level A encapsulated training suit

FEATURES

- Made of interceptor Plus fabric;
- 0.5mm PVC face shield;
- 48" zipper, double storm flap;
- Attached boots sock;
- Training use only.









Level A / NFPA Test Kit

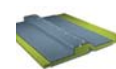
FEATURES

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. 00220 – Universal test kit for DuPont, Lakeland, and Kapler Level A and NFPA Certified suits. Features an integrated blower for suit inflation.

Product Style	Color	Seam Methods	Sizes	Case Pack
ICP645A	Orange, Yellow, Blue   	Heat Sealed Seam Plus	S-XXXL	1
ICP491/ICP497	Orange, Yellow, Blue   	Heat Sealed Seam	S-XXXL	1
00220				1

INTERCEPTOR® Plus



ICP450
Level B Encapsulated Suit

Encapsulated suit (Level B), rear entry, expanded back, 48" zipper, storm flap, PVC faceshield, elastic wrists, 2 exhaust ports with shroud, attached sock boots with boot flaps.



ICP400
Level B Flat Back

Rear entry.
Thickening PVC face shield.
With connector on waist, which can connect all kinds of air tube.
Protection against long-time hazards.



ICP130
Coverall

Coverall, hood, elastic face, wrists and ankles. Front storm flap with hook and loop closure.



ICP165
Level B Coverall

Coverall, respirator fit hood, double storm flap with hook and loop closure, elastic face and wrists, attached boots with boot flaps.



ICP155
Level B Coverall

Coverall, expanded back for SCBA, respirator fit hood, storm flap with hook and loop closure, elastic face and wrists, attached boots.

Note: Chemical protective coverall with socks which need to wear chemical boots over it.

Product Style	Color	Seam Methods	Sizes	Case Pack
ICP450/ ICP400/ICP130/ ICP165/ ICP155	Orange, Yellow, Blue   	Heat Sealed Seam	S-XXXL	1

CHEMICAL PROTECTIVE CLOTHING PERMEATING DATA

Chemical	CAS Number	Phase	Conc	ChemMAX 1	ChemMAX 2	ChemMAX 3	ChemMAX 4 Plus	Interceptor PLUS
				EN6529	EN6529	EN6529	EN6529	EN6529
Acetic Acid	64-19-7	Liquid	99%	200	>480	>480	>480	470
Acetic Anhydride	108-24-7	Liquid	99%	-	>480	>480	-	-
Acetone	67-64-1	Liquid	95%	Imm	>480	>480	>480	>480
Acetonitrile	75-05-8	Liquid	99%	>480	>480	>480	>480	>480
Acetyl Chloride	75-36-5	Liquid	98%	-	-	-	>480	210
Acrolein	107-02-8	Liquid	90%	-	11	>480	>480	>480
Acrylic Acid	79-10-7	Liquid	99%	120	>480	>480	>480	430
Acrylonitrile	107-13-1	Liquid	99%	-	>480	>480	>480	>480
Allyl Chloride	107-05-1	Liquid	98%	-	-	-	>480	>480
Ammonia	7664-41-7	Liquid	99%	-	-	-	-	>480
Ammonia Gas	7664-41-7	Gas	100%	Imm	15	>480	>480	>480
Ammonium Fluoride	12125-01-8	Liquid	40%	-	-	-	>480	>480
Amyl Acetate	628-63-7	Liquid	99%	-	-	>480	-	-
Aniline	62-53-3	Liquid	95%	-	>480	>480	-	-
Benzene	71-43-2	Liquid	100%	-	Imm	>480	>480	-
Benzonitrile	100-47-0	Liquid	99%	-	-	-	>480	>480
Benzyl Alcohol	100-51-6	Liquid	>95%	-	>480	-	-	-
Benzoyl Chloride	98-88-4	Liquid	98%	-	-	-	-	>480
Bromine	7726-95-6	Liquid	98%	-	Imm	Imm	>480	120
Bromochloromethane	74-97-5	Liquid	98%	-	-	-	-	>480
4-Bromofluorobenzene	460-00-4	Liquid	99%	-	-	-	>480	>480
Butyl Acrylate	141-32-2	Liquid	99%	-	-	-	-	>480
1,2 Butylene Oxide	106-88-7	Liquid	99%	-	-	-	-	>480
1,3-Butadiene	106-99-0	Gas	99%	Imm	>480	>480	>480	>480
n-Butyl Acetate	123-86-4	Liquid	99%	-	-	-	>480	>480
N-Butanol	71-36-3	Liquid	99%	-	>480	-	-	-
Butyraldehyde	123-72-8	Liquid	99%	-	>480	-	-	-
Carbon Disulfide	75-15-0	Liquid	95%	>480	>480	>480	>480	>480
Carbon Monoxide	630-08-0	Gas	100%	-	>480	320	-	>480
Carbon Tetrachloride	56-23-5	Liquid	99.9%	-	-	-	-	>480
Chlorine Gas	7782-50-5	Gas	99%	Imm	>480	>480	>480	>480
Chloroacetone	78-95-5	Liquid	>95%	-	>480	-	-	-
Chloroacetic Acid (saturated solution)	79-11-8	Liquid	saturated solution	-	-	-	-	>480
Chloroacetyl Chloride	79-04-9	Liquid	98%	-	-	-	-	>480
Chlorobenzene	108-90-7	Liquid	>95%	-	-	9	>480	>480
Chlorosulfuric Acid	7790-94-5	Liquid	99%	-	>480	-	>480	>480
Crotonaldehyde	123-73-9	Liquid	99%	-	>480	-	-	-
Cyclohexane	110-82-7	Liquid	99%	-	>480	>480	-	-
Cyclohexanone	108-94-1	Liquid	99%	-	48	-	>480	>480
Cyclohexyl Isocyanate	3173-53-3	Liquid	99%	-	5	-	-	>480
Dichloroacetyl Chloride	79-36-7	Liquid	98%	-	-	-	-	400
1,2-Dichloroethane	107-06-2	Liquid	100%	-	>480	>480	-	-
Dichloromethane	75-09-2	Liquid	99.9%	Imm	Imm	>480	>480	>480
1,2-Dichloropropane	78-87-5	Liquid	99%	-	>480	-	-	-
Diesel Fuel	68334-30-5	Liquid	100%	-	-	>480	-	-
Diethylamine	109-89-7	Liquid	99.5%	Imm	15	Imm	-	>480
N, N-Dimethylaniline	121-69-7	Liquid	99%	-	-	-	-	>480
Diethylene Glycol (Dimethyl Ether)	111-96-6	Liquid	99%	-	-	-	>480	>480
Diethylenetriamine	111-40-0	Liquid	98%	-	-	-	>480	>480
2,3-Dichloro-1-Propene	78-88-6	Liquid	98%	-	-	-	>480	>480
Dimethylamine	124-40-3	Liquid	99%	-	210	-	-	-
Dimethyl Sulfate	77-78-1	Liquid	99%	-	-	-	-	>480
Dimethyl Disulfide	624-92-0	Liquid	99%	-	-	-	-	>480
Dimethyl Ether (gas)	115-10-6	Gas	99%	-	-	-	-	>480
Dimethyl Sulfoxide	67-68-5	Liquid	99.9%	-	-	>480	>480	>480
Dimethylacetamide	127-19-5	Liquid	>95%	-	45	-	>480	-
Dimethyl Formamide	68-12-2	Liquid	99%	>480	>480	>480	>480	>480
DI-N-Butyl ether	142-96-1	Liquid	99%	-	-	>480	>480	>480
Dinoseb	88-85-7	Liquid	1000ppm	-	-	>480	-	-
Epichlorohydrin	106-89-8	Liquid	99.9%	-	260	>480	-	-
Ethanol Amine	141-43-5	Liquid	99%	-	-	>480	-	-
Ethyl Acetate	141-78-6	Liquid	99.5%	Imm	>480	>480	>480	>480
Ethyl Acrylate	140-88-5	Liquid	99%	-	-	-	>480	>480
Ethyl Methacrylate	97-63-2	Liquid	99%	-	-	-	-	>480
Ethyl Parathion	56-38-2	Liquid	100 µg/mil ethanol	-	-	-	-	>480
Ethyl Vinyl Ether	109-92-2	Liquid	99%	-	-	-	-	>480
Ethylamine (gas)	75-04-7	Gas	97%	-	-	-	-	>480
Ethyl Acrylate	140-88-5	Liquid	99%	-	-	-	>480	>480
Ethyle Ether	60-29-7	Liquid	98%	-	-	-	>480	>480
Ethylene Oxide	75-21-8	Liquid	99.7%	>480	>480	>480	>480	>480
Ferric Chloride	7705-08-0	Liquid	saturated solution	-	-	-	-	>480
Fluorine (Sodium Fluoride)	7681-49-4	Liquid	99%	>480	-	-	-	>480
Fluorobenzene	462-06-6	Liquid	99%	-	-	>480	>480	>480
Fluorosilic Acid (25 wt% aqueous sol.)	16961-83-4	Liquid	25%	-	-	-	>480	>480
Ethylene Glycol	107-21-1	Liquid	99%	>480	>480	>480	-	-
Ethyl Benzene	100-41-4	Liquid	98%	-	-	>480	-	-
Ethylene Oxide Gas	75-21-8	Gas	99.7%	>480	>480	>480	-	>480
Formaldehyde	50-00-0	Liquid	37%	-	>480	>480	-	-

- This is a general guide to selecting garments only, and should not be used as the definitive or only tool in garment selection.
- It is the responsibility of the user to select garments or products which are appropriate for each intended use and which meet all specified government and industry standards.
- Some data is not in the table and performance data of ChemMax keeps updating. Please contact Lakeland's sales to get the latest information.
- The test data is supplied by third-party test institution according to EN6529, namely the time it takes chemical penetration rate to achieve 0.1µg/cm²/min at constant 23°C.

CHEMICAL PROTECTIVE CLOTHING PERMEATING DATA

Chemical	CAS Number	Phase	Conc	ChemMAX 1	ChemMAX 2	ChemMAX 3	ChemMAX 4 Plus	Interceptor PLUS
				EN6529	EN6529	EN6529	EN6529	EN6529
Formic Acid	64-18-6	Liquid	>95%	>480	>480	>480	>480	>480
Gasoline	86290-81-5	Liquid	100%	-	>480	>480	-	-
Hexachloro-1,3 butadiene	87-68-3	Liquid	99%	-	-	-	>480	>480
Hexamethyldisilazane	999-97-3	Liquid	>95%	-	>480	-	-	-
N-Hexane	110-54-3	Liquid	99.9%	-	>480	>480	>480	>480
Hexamethylene Diisocyanate	822-06-0	Liquid	99%	>480	>480	>480	-	-
Hydrazine Hydrate (64% hydrazine)	10217-52-4	Liquid	100%	-	-	-	-	>480
Hydrochloric Acid	7647-01-0	Liquid	37%	420	>480	>480	>480	>480
Hydrofluoric Acid	7664-39-3	Liquid	48-50%	-	>480	>480	>480	>480
Hydrogen Fluoride	7664-39-3	Liquid	100%	-	>480	>480	>480	>480
Hydrogen Fluoride Gas	7664-39-3	Gas	99%	-	>480	>480	-	>480
Hydrogen Chloride Gas	7647-01-0	Gas	99%	Imm	410	>480	-	>480
Hydrogen Cyanide	74-90-8	Gas	95%	>480	-	-	-	-
Hydrogen Cyanide	74-90-8	Liquid	95%	-	-	>480	-	-
Hydroiodic Acid	10034-85-2	Liquid	56.5%	-	-	-	>480	>480
Hydrogen Peroxide	7722-84-1	Liquid	30%	>480	>480	>480	-	>480
Hydrogen Peroxide	7722-84-1	Liquid	50%	>480	>480	>480	-	>480
Isopropanol	67-63-0	Liquid	99%	>480	-	-	-	-
Isobutane	75-28-5	Gas	99%	-	-	-	-	>480
Isobutylbenzene	538-93-2	Liquid	99.5%	-	-	-	-	>480
Isoprene	78-79-5	Liquid	98%	-	-	-	-	>480
Maleic Acid	110-16-7	Liquid	saturated solution	-	-	-	-	>480
Maleic Anhydride (solution)	108-31-6	Liquid	65%	-	-	-	-	>480
Jet Fuel A		Liquid	100%	Imm	283	>480	-	-
Jet Fuel JP-8		Liquid	100%	Imm	>480	>480	-	-
Lithium Chloride	7447-34-8	Liquid	20%	>480	-	-	-	-
Mercury II Nitrate(1000 ppm solution)	7483-34-8	Liquid	100%	-	-	>480	-	-
Metacrylic Acid	79-41-4	Liquid	99%	-	-	-	-	>480
Methanol	67-56-1	Liquid	99.9%	210	>480	>480	>480	>480
Methyl Chloride	74-87-3	Gas	99.5	>480	>480	>480	>480	>480
Methyl Iodide	74-88-4	Liquid	99.9%	-	-	-	-	>480
Methyl Mercaptan	74-93-1	Liquid	99%	-	-	>480	-	>480
Methylamine	74-89-5	Liquid	40%	-	>480	>480	>480	>480
Methylamine	74-89-5	Liquid	99%	-	-	-	-	>480
Methylene Dianiline	101-77-9	Liquid	99%	Imm	Imm	>480	-	>480
Methylene Diphenyl Diisocyanate	101-68-8	Liquid	99%	>480	>480	>480	-	-
Methyl Ethyl Ketone	78-93-3	Liquid	99.5%	-	>480	>480	-	-
Methylthiopropionaldehyde	3268-49-3	Liquid	>97%	-	-	>480	-	-
Methyl Isocyanate	624-83-9	Liquid	100%	-	>480	-	-	-
Nitric Acid	7697-37-2	Liquid	70%	>480	>480	>480	>480	>480
n-Butyl Acetate	123-86-4	Liquid	99.9%	-	-	-	-	>480
n-butylamine	109-73-9	Liquid	99%	-	-	-	-	>480
Nitrobenzene	98-95-3	Liquid	99.9%	50	150	170	>480	>480
Nitric Oxide	10102-43-9	Gas	99%	-	-	-	-	>480
Nitrochloro Benzene (ethanol solution)	201-854-9	Liquid	saturated solution	-	-	-	-	>480
Nitrogen Tetroxide (<10°C)	10102-44-0	Gas/Liquid	99%	-	-	-	-	>480
Nitrogen Dioxide	10102-44-0	Gas	100%	-	>480	>480	-	>480
Oleum	8014-95-7	Liquid	40%	30	>480	>480	-	>480
Oleum	8014-95-7	Liquid	100%	-	>480	>480	-	>480
Oxalic Acid (solution)	144-62-7	Liquid	75%	-	-	-	-	>480
Phenol	108-95-2	Liquid	99%	>480	>480	>480	>480	>480
Phosphoric Acid	7664-38-2	Liquid	85%	>480	>480	>480	>480	>480
Potassium Hydroxide	1310-58-3	Liquid	50%	>480	>480	>480	>480	>480
Propionaldehyde	123-38-6	Liquid	99%	-	-	-	-	>480
Propionic Acid	79-09-4	Liquid	99.5%	-	-	-	-	>480
Pyridine	110-86-1	Liquid	99%	-	-	-	-	>480
Phosphorous Trichloride	7719-12-2	Liquid	>95%	-	Imm	20	-	-
Propionitrile	107-12-0	Liquid	99%	>480	-	-	-	-
Sodium Hydroxide	1310-73-2	Liquid	50%	>480	>480	>480	>480	>480
Styrene	100-42-5	Liquid	98%	-	12	>480	-	-
Sulfuric Acid	7664-93-9	Liquid	30%	>480	>480	>480	-	>480
Sulfuric Acid	7664-93-9	Liquid	98%	>480	>480	>480	>480	>480
Sulfur hexafluoride	2551-62-4	Gas	99%	-	-	-	-	-
Sulfur Trioxide	7446-119	Liquid	99%	-	120	80	-	>480
Tetrachloroethylene	127-18-4	Liquid	99%	-	>480	>480	>480	>480
1,1,2,2-Tetrabromoethane	97-27-6	Liquid	98%	-	-	-	-	>480
Thionyl Chloride	7719-09-7	Liquid	99%	-	-	Imm	>480	30
Tetrahydrofuran	109-99-9	Liquid	99.9%	Imm	81	>480	>480	>480
Tiethoxysilane	998-30-1	Liquid	95%	-	-	-	-	>480
Titanium Tetrachloride	7550-45-0	Liquid	99%	-	>480	>480	-	-
Toluene	108-88-3	Liquid	99.8%	Imm	Imm	>480	>480	>480
Toluene-2,4-Diisocyanate	584-84-9	Liquid	98%	-	-	-	>480	>480
2,2,2-Trichloroethanol	115-20-8	Liquid	99%	-	-	-	>480	>480
Trichloroethylene	79-01-6	Liquid	100%	-	Imm	>480	>480	>480
Trichlorovinylsilane	75-94-5	Liquid	99%	-	70	-	-	-
Trifluoroacetic Acid	76-05-1	Liquid	99%	-	>480	>480	>480	-
Vinyl Acetate	108-05-4	Liquid	99%	-	29	>480	>480	>480
Vinyl Bromide	593-60-2	Gas	99%	-	-	-	-	>480
Vinyl Chloride	75-01-4	Liquid	99%	-	>480	>480	>480	>480
Xylene	1330-20-7	Liquid	99%	-	-	>480	-	-

PermaSURE®

What is PermaSURE®?

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

Permeation test data can be used for comparison of fabric performance but does not indicate safe-use time.

Users that rely on permeation test data to indicate how long they are safe may be coming into contact with small amounts of the chemical. This could be critical in the case of highly toxic chemicals or chemicals with long term toxicity.

To be safe: users need to calculate a safe-use time.

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

Manual calculation of safe-use time is problematic because of the difficulty in accessing relevant information such as permeation rates and chemical toxicity.

Permeation Rate
x
Area of Contamination
x
Duration of Contamination
=
Volume Permeated

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

If volume permeated < chemical toxicity
= SAFE

If volume permeated > chemical toxicity
= NOT SAFE

PermaSURE® is an on-line tool and downloadable smartphone app. that calculates permeation rates and volume permeated and provides safe-use times by comparison with chemical toxicity limits as described above.
[Http://www.lakeland-permaSure.com](http://www.lakeland-permaSure.com)

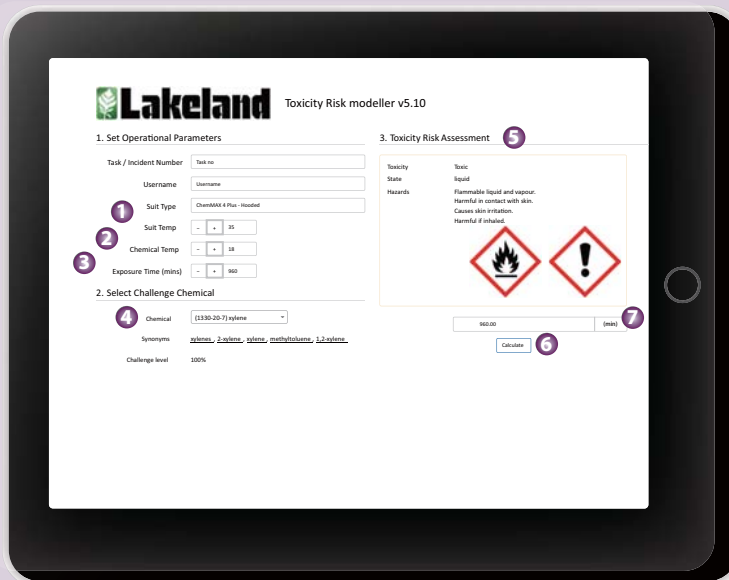
1 Specify suit type
ChemMax® 3, ChemMax® 4 Plus or Interceptor Plus®
Coverall with hood, collar or encapsulating suit.

2 Specify temperature
What temperature is the suit fabric?
This affects the rate of permeation.

3 Specify exposure time
How long will the task take?
This is the maximum possible duration of exposure.

4 Specify chemical
Input name or CAS number and select from over 4000 chemicals in the database.

! The molecular model behind PermaSURE® was developed in conjunction with the UK Ministry of Defence for assessing protection against chemical warfare agents.



5 Basic hazard data
Basic toxicity level and information on the hazard type.

6 Click Calculate
PermaSURE® quickly advises if the toxicity level for the chemical will be reached within the exposure time.

7 The key information
Are you safe in the input exposure time?

PermaSURE® allows users to calculate safe-use times for ChemMax® 3 & 4 Plus and Interceptor® Plus garments based on real world data including temperature and exposed area.

PermaSURE®


works on any browser-enabled device

PermaSURE® is a registered trade mark of Industrial Textile & Plastics Ltd, Easingwold, UK

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

Introduction: Why Use Pyrolon™?

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



Why is wearing standard chemical suits over thermal protective garments a hazard?

How do FR standards EN 14116 and EN 11612 standards differ?

What is Thermal Mannequin Testing and how do different garment types perform?

Why is wearing standard chemical suits over thermal protective garments a hazard?

Currently users often wear a Thermal Protective Garment (TPG) certified to EN 11612 for flame/heat protection and wear a standard chemical suit OVER it for the required liquid or dust protection.

This creates a HAZARD!

Why?

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

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

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

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

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

How do FR standards EN 14116 and EN 11612 standards differ?



EN 11612 is the standard for measuring PROTECTION against different types of heat; convective, radiant, contact etc.



EN 14116 does not indicate any PROTECTION against flames or heat but is to indicate a fabric's flammability - the tendency to ignite and burn in contact with flame.



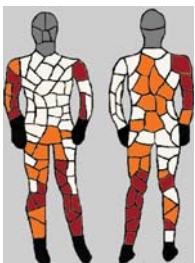
For Flame & Heat Protection a Thermal Protective Garment (TPG) certified to EN 11612 should be worn.

EN 14116 Index 1 garments can be worn over a TPG without compromising protection.

Lakeland Pyrolon™ garments use a unique viscose based fabric which will not ignite and are certified to EN 14116. However, Pyrolon™ TPCR is certified to EN 11612 and, can REPLACE a standard EN 11612 TPG and provides chemical protection to Type 3 & 4.

What is Thermal Mannequin Testing and how do different garment types perform?

Thermal Mannequin Testing provides a method of assessing the effectiveness of heat protective workwear by using a thermal mannequin (a mannequin covered in heat sensors) and simulating flash fires.



This test produces a body map showing Predicted 2nd and 3rd degree burns and so indicates how effectively a garment protects the wearer.

The table indicates how different Type 3 & 4 and Type 5 & 6 suits perform in this test when worn over a Thermal Protective Garment.

Type 3 & 4 coverall tests		TPG with Standard Chemical Suit		TPG with Pyrolon™ CRFR Coverall	
		PBB = 53% including 3rd degree burns		PBB = 24% NO 3rd degree burns	
Tests show Pyrolon™ CRFR results in a much lower incidence of body burn than with standard chemical suits.					
Type 5 & 6 coverall tests	TPG with FSPE coverall	TPG with Standard SMS Coverall	TPG with FR SMS Coverall	TPG with Pyrolon™ Plus 2 coverall	
	PBB = 23.9% including 3rd degree burns	PBB = 20.5% including 3rd degree burns	PBB = 19.6% including 3rd degree burns	PBB = 7.4% NO 3rd degree burns	
	Tests show Pyrolon™ Type 5 & 6 coveralls result in a much lower incidence of body burn than with standard chemical suits. Note: there is almost no difference in performance between a standard SMS and an FR SMS. PBB = predicted body burn				

Pyrolon™ garments provide a range of protection

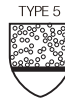
	Pyrolon™ Plus 2	Pyrolon™ CRFR	Pyrolon™ CBFR	Pyrolon™ TPCR
EN 14116	✓ Index 1	✓ Index 1	✓ Index 3	✓ Index 1
Type 6	✓	✓	✓	
Type 5	✓			
EN 1073	✓			
Type 4		✓	✓	✓
Type 3		✓	✓	✓
EN 11612				✓
EN 1149-5	✓	✓	✓	✓



Superior Anti-Static Properties

Pyrolon™ garments also feature intrinsic anti-static properties which unlike standard chemical suits do not rub off or erode with time.

Pyrolon® Plus 2



EWP428B

Pyrolon® Plus 2 is the entry level suit featuring the essential Pyrolon® fabric, lightweight, breathable and much economical, and offers Type 5 and 6 chemical and dust protection combined with excellent FR properties.

FEATURES

- A unique viscose based material designed to char at a lower temperature than its ignition point so that unlike standard disposable fabric it does not ignite, propagate a flame or drip molten, burning debris.
- Disposable FR garments do not provide flame and heat protection but are designed to be worn over Thermal Protective Garments without compromising thermal protection.
- Highly breathable so comfortable to wear.
- Soft and flexible fabric.
- Combined superior FR properties and liquid /dust protective properties.

KEY APPLICATIONS

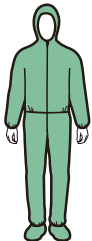
- ▶ Petrochemical & Refining Industries.
- ▶ Wear over thermal protective garments without compromising chemical protection.
- ▶ Maintenance applications.
- ▶ Fuel handling and distribution.

Physical Property	Test Method	Test Result
Basis Weight	ISO 3801:1997	75g/m ²
Tensile Strength	EN 13934	76.1/40.1 N
Abrasion Resistance	EN 530	<1500 Cycles
Puncture Resistance	EN 863	12.2 N
Burst Strength	ISO 2960	290 kPa
Flex Cracking	ISO 7854	100000 Cycles
Trapezoidal tear md/cd	ISO 9073	24.2/26.7 N
Trapezoidal tear -mean	ISO 9073	25.45 N
Seam Strength	ISO 5082	63 N

Pyrolon® Plus 2 Styles



428,Coverall
Coverall with hood,
elastic cuffs, waist
& ankles.





414,Coverall
Coverall with hood
and attached boot,
elastic cuffs,
waist & ankles.



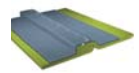
145, coat
Coat with hood,
zipper closure,
elastic cuffs &
waist.



301,Pants
Pants with
elastic waist
and ankles.

Product Style	Color	Seam Method	Sizes	Case Pack
EWP428B/EWP414B	Blue 	Serged seam	S-XXXL	25
EWP145B/EWP301B	Blue 	Serged seam	S-XXXL	25

Pyrolon® crfr



PCF428E

Pyrolon® CRFR Styles



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



145, coat
Coat with hood,
zipper closure,
elastic cuffs &
waist.



301, Pants
Pants with
elastic waist
and ankles.

FEATURES

- FR properties mean the fabric will not burn when in contact with flame and will not contribute fuel to a fire. The fabric chars without flaming or molten drips or debris.
- Thermal mannequin testing has shown that unlike standard disposables, Pyrolon CRFR will not reduce thermal protection when worn over a Thermal Protective Garment. In many cases thermal protection will be increased.
- Fully taped seams provide full seal against penetration by chemicals.
- Zip front features double storm flap with double zip. More effective and efficient than standard double tape or Velcro flap sealing.
- Not suitable for protection against heat and flame when worn on its own and should not be worn next to the skin.

KEY APPLICATIONS

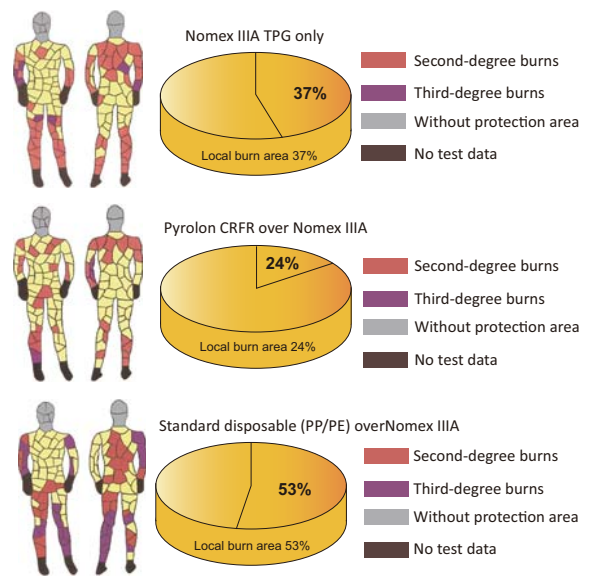
- ▶ Wear over a Thermal Protective Garment to provide chemical spray protection to Type 3 and 4.
- ▶ Wear for liquid chemical protection where contact with small flame is possible.
- ▶ Petrochemical and refining industries.
- ▶ Tank/ pressure cleaning involving flammable liquids.
- ▶ Petroleum distribution and processing.

Physical Property	Test Method	Test Result
Basis Weight	ISO 3801:1997	144g/m ²
Abrasion Resistance	EN530:1994	>2000
Flex Cracking Resistance	ISO7854	>40K
Burst Strength	ISO 2960	111.8KN/m ²
Puncture Resistance	EN863:1995	14.7N
Tear Resistance (MD/CD)	ISO9073-4:2007	48N/34.3N
Flammability Resistance	EN14116 Index 1	Pass

CRFR are constructed from the wood pulp fibres with special FR treatments applied. It can be worn over Thermal Protective Garments without compromising thermal protection.

In fact, not only does Pyrolon provide protection against liquid splashes (Types 3, 4, 5 and 6), but when worn over a TPG can actually increase overall thermal protection.

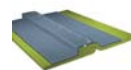
Thermal Mannequin Testing has shown conclusively that Pyrolon could be the difference between a life and death scenario when worn as a replacement for a standard disposable worn over a TPG.



Local burn area=second-degree burns+third-degree burns

Product Style	Color	Seam Method	Sizes	Case Pack
PCF428E	Gray, Orange ● ●	Heat Sealed Seam	S-XXXL	10

Pyrolon® CBFR



EBR228

Pyrolon® CBFR Styles



EBR228, Coverall
Coverall with hood,
elastic cuffs, waist
& ankles.
Double front zip
fastening,
cushioned
kneepads.



EBR214, Coverall
Coverall with hood and
attached boot,
elastic cuffs, waist &
ankles.
Double front zip
fastening,
cushioned kneepads.

High barrier Type 3 & 4 chemical suit combined with FR properties to EN 14116-Index 3. Can be worn over Thermal Protective (EN11612) Garments without compromising thermal protection as a standard chemical suit would.

FEATURES

- Pyrolon base fabric with PVC chemical barrier film laminate for combined FR and chemical protection properties;
- Stitched / taped seams for full seal;
- Single zip and double storm flap front fastening with hook and loop seals enabling re-use where appropriate (chemical suits should ONLY be reused if uncontaminated and undamaged. Decision on re-use is the users responsibility;
- Coverall with hood, elasticated cuffs, waist and ankles. Double layer, cushioned kneepads for comfort and durability. Version with attached feet available.

KEY APPLICATIONS

- ▶ Petrochemical & Refining applications
- ▶ Maintenance applications during petrochemical clean-downs
- ▶ Fabric will not ignite and burn wear over TPG'S
- ▶ Fuel handling and distribution

Physical Properties

EN Standard	Description	Result	EN Class
EN 530	Abrasion Resistance	>2000 Cycles	Class 6
ISO 7854	Flex Cracking	>5000 Cycles	Class 3
ISO 9073	Trapezoidal tear md/xd	82/55.7N	Class 3
EN 13934	Tensile Strength	140/110N	Class 3
EN 863	Puncture Resistance	10N	Class 2
ISO 2960	Burst Strength	-	NT
ISO 13935-2	Seam Strength	190N	Class 4

Chemical Permeation EN 6529 For Types 1 to 4

Chemical	CAS No	Result / EN Class
Acetone 99.5%	67-64-1	>480
Acetonitrile 99%	75-05-8	>480
Ammonia anhydrous 99%	7664-41-7	>480
Benzene 99.8%	71-43-2	>480
Butadiene 99%	106-99-0	>480
Carbon disulfide 99.9%	75-15-0	>480
Chlorine 99.5%	7782-50-5	>480
Crude oil	VARIOUS	>480
Dichloromethane 99.8%	75-09-2	>480
Diesel fuel	VARIOUS	>480
Dimethylformamide 99.9%	68-12-2	>480
Ethyl acetate 99.8%	141-78-6	>480
Ethylene oxide 99.7%	75-21-8	>480
Gasoline	VARIOUS	>480
Hydrofluoric acid 48%	7664-39-3	>480
Hydrogen chloride 99%	7647-01-0	>480
Methyl chloride 99.5%	74-87-3	>480
N-hexane 95%	110-54-3	>480
Nitrobenzene	98-95-3	>480
Sodium hydroxide 50%	1310-73-2	>480
Sulfuric acid 96%	7664-93-9	>480

Product Style

EBR228/EBR214

Color

Blue

Seam Method

Heat Sealed Seam

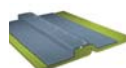
Sizes

S-XXXL

Case Pack

1

Pyrolon® TPCR



ETPCR428

Lakeland Pyrolon™ TPCR offers users a unique combination of protection against multiple risks in a single, limited life coverall.

FEATURES

- FR chemical Barrier film laminated to FR base - 330gsm.
- 'Blanket' base fabric offers good FR and high level arc protection.
- Fabric does not ignite in FR tests.
- Achieves Arc Thermal Protective Value of 21.9 cal/m² - HRC Class 2.
- Melting point of 232°C - will resist splashes of hot liquids.
- Single coverall for protection covers multiple risks:
 - Flame and heat protection to EN 11612 - A1/A2.
 - Chemical splash and spray protection to Types 3 & 4 (EN 14605)
 - Passed all heat resistance tests - EN Class 1 in all tests : Convective, radiant and contact heat + molten aluminium and iron splash similar to most FR woven fabrics.
 - Protection against thermal hazards of electric arc... class 1 (4kA) in EN 61482-1-2
 - Arc Thermal Protective Value (ATPV) according to ASTM 1959 test = 21.9 cal/m²
 - Protection for welding and allied process to EN 11611.
- Soft and flexible fabric for enhanced comfort.
- Fabric is tough and durable. Can be used more than once if uncontaminated and un-damaged. Decision on re-use is the users' responsibility.
- Replace FR garments in dirty or physically demanding areas to reduce costs of replacement and laundering.

KEY APPLICATIONS

- ▶ Wear for liquid chemical protection where contact with small flame is possible.
- ▶ Petrochemical and refining industries.
- ▶ Tank/ pressure cleaning involving flammable liquids.
- ▶ Petroleum distribution and processing.

Physical Properties

Property	EN Standard	CE Class
Abrasion Resistance	EN 530	2
Flex Cracking	ISO 7854	4
Trapezoidal Tear	ISO 9073	4
Tensile Strength	EN 13934	2
Puncture Resistance	EN 863	2
Anti-Static (Surface Resistance)	EN 1149-1	<2.5 x 10 ⁹ ohms
Seam Strength	EN 13935-2	5

Pyrolon® TPCR Styles



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



201H, coat
Coat with hood,
zipper closure,
elastic cuffs &
waist.



301,Pants
Pants with
elastic waist
and ankles.

Garment Material Flame Resistance Performance

Property	Standards	Results
Heat resistance (at 180 °C)	ISO17493	Fabrics did not ignite or melt. MAX shrinkage = 0.6%
Limited flame spread (Face ignition A1)	ISO 15025:2000 Method A	No flaming to edge. No holing. No melting or flaming or molten debris. Mean after flame time = 0 Mean afterglow time = 0
Convective heat (B)	ISO 9151:1995	6.2S, B1
Radiation heat (C)	ISO 6942:2002	17.5S, C1
Molten aluminum splash (D)	ISO 9185:2007	100g, D1
Molten iron splash (E)	ISO 9185:2007	60g, E1
Contact heat (F)	ISO 12127:1996 Tc=250	8.4S, F1

Product Style	Color	Seam Method	Sizes	Case Pack
ETPCR428	Orange	Heat Sealed Seam	S-XXXL	1
ETPCR201H/ ETPCR301	Orange	Heat Sealed Seam	S-XXXL	1

EPVC



EPVC428

Lakeland New product-Low risk PVC Chemical Protective Garment Reusable with Extra Softness and Durability.



Double storm flap with velcro and zipper closure.



Drawstring on bottom of Jacket for adjustment.

FEATURES

- Protection against splashes and sprays of chemical in Type 3 & 4 application.
- Reusable- Long Lasting service life.
- Exceptional comfort with good durability.
- Applicable in wet environment.
- Excellent design for user's comfort.

KEY APPLICATIONS

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

Items	Standards	Results	EN Class
Weight	-	310gsm	-
Abrasion resistance	EN 530	<2,000 Cycles	Class 6
Flex cracking resistance	EN ISO 7854 method B	>100,000 Cycles	Class 6
Tear resistance	EN ISO 9073-4	MD = 37.8N / CD = 34N	Class 2
Tensile strength	EN ISO 13934-1	MD = 305N / CD = 198.9N	Class 3
Puncture resistance	EN 863	>22.9N	Class 2
Burst Strength	ISO 2960	255kPa	Class 3
Seam strength	EN ISO 13935-2	163N	Class 4

EPVC® Styles



EPVC428,Coverall
Zipper, attached hood,
elastic wrist and ankle,
with zip flap.





EPVCJT02, coat
Zipper, attached hood,
elastic wrist and ankle,
with zip flap.



EPVCTS02, Bib Pants.

Chemical Permeation ISO6529/ASTMF739 Breakthrough Time Breakthrough Class*

Chemicals	Breakthrough Time	Class
Sodium hydroxide 40%, 50% (1310-73-2)	> 480min	6
Hydrochloric acid 30% (7647-01-0)	> 480min	6
Acetic acid 30% (64-19-7)	> 480min	6
Sulfuric acid 50% (7664-93-9)	> 480min	6
Phenol/sodium hydroxide 1:1 (139-02-6)	> 480min	6
Sodium hypochlorite 10%-15% (7681-52-9)	> 480min	6

Product Style	Color	Seam Methods	Sizes	Case Pack
EPVC428	Yellow 	Heat Sealed Seam	S-XXXL	5
EPVCJT02/ EPVCTS02	Yellow 	Heat Sealed Seam	S-XXXL	5

ACCESSORIES



R-2-49 ChemTough™ Safety Footwear

FEATURES

- CE certificate, EN ISO20345:2011 standard. Recommendation: Petro-chemical industry, Mining operations, Electric power industry etc.
- Chemical resistance: Oil and corrosion resistance, Resistant towards inorganic acids and alkalis.
- Outer material: High property PVC, promoting the properties by adding stabilizers and resistant chemical additives; Antistatic property.
- Lining material: Comfortable polyester fiber lining.



A4422B1 ACIFORT® HEAVY DUTY FULL SAFETY Basic chemical resistance and worker protection

FEATURES

- Strong abrasion resistant outsole for extra durability.
- Easy cleaning and SRA+ rated slip resistant outsole.
- Shock absorbing heel design.
- Protective toecap & midsole.
- Certified according to European standard (EN ISO 20345:2011 S5 SRA).
- Nitrile and polymers enhanced PVC compound for basic chemical protection.
- Reinforced ankle protection.



87012/87015 HAZMAX Chemical Protective Boots

FEATURES

- The finest boots made for hazardous materials handling.
- Meet the requirements of NFPA 1991-2005.
- Steel toecap, shank and midsole.
- Steel toe complies with ASTM F2413-11 and CSA Z195.
- Seamless injection modeling with PVC.
- 87012-16" boot height.
- 87015-11" boot height, which is usually used with the chemical protective coverall with socks.



82330 HazProof Chemical Protective Boots

FEATURES

- Made of special polymer, meet the test requirements of NFPA 1991 to high-level chemical-protective material.
- Meet the requirement of ASTM F2413-05 on shock resistant and pressure proof of toecap, and can resist 1400V high voltage.
- Insole is beyond the requirement of ANSI Z41 PT99PR.
- Seamless injection modeling.
- Designed for easy donning and doffing while wearing chemical protective gloves.
- Inflatable EVA nonrattling sole.
- 28cm high, high visible orange.



Push-Lock® Glove Connection System Unique system to connect chemical gloves to ChemMax® coverall sleeves.

FEATURES

- Two concentric plastic rings clip together with glove and sleeve between.
- Provides liquid-tight seal tested and approved to Type 3 Jet Spray with ChemMax® 1, 2, 3 and 4 Plus garments.
- Multi-use so more cost effective.
- Simpler and quicker to use and fit compared to traditional taping of sleeve and glove.



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

Product Style	Color	Sizes	Case Pack
87012	Bright Green	7-13	2
87015	Bright Green	S-XL	2
82330	Bright Orange	7-10	2
R-2-49	Bright Brown	36-47	5
A4422B1	Yellow	39-45	6
JFR2	Black	one size	50

COOL VEST

Get comfortable with a Phase Change Cool Vest from Lakeland Industries.

Working when wearing a chemical protective suit or other protective clothing especially in summer day or high temperature environment can make anyone lose their cool and reduce their efficiency, and even get heatstroke.

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 30 minutes or more, the vests deliver the constant cool temperature. This ensures that the wearer receives a constant cooling temperature throughout the entire two to four hours. To achieve continues cooling, additional insert sets are available so the user can rotate each set.



00050C Vest

- Two layers polyester-cotton fabric, black elastic mesh fabric on the hem and waist.
- Silvery reflective line on the shoulder and hem.
- Radio equipment loop, resin zipper, LOGO embroidery.
- Black elastic nylon lining, 4 inserts bags, pocket on the waist.



00055C Vest

- Polyester-cotton fabric, polyester fiber filling material.
- Resin zipper, LOGO embroidery.
- Adjustable waist and shoulder velcro belt.
- Black elastic nylon lining, 4 inserts bags.



Style 00057 – The Phase Change Lower Cool Inserts

- Style 00057 is made of a US imported high polymer proprietary blend of alkanes with unique thermal properties.
- The Phase Change maintains a constant temperature 14°C for faster frozen in ice water or a refrigerator.
- In a refrigerator for 30 minutes, the insert will be totally frozen.
- Designed for comfort, the Phase Change Material maintains a constant temperature 14°C.
- Last 2 to 4 hours cool in a high temperature environmental.
- One Cool Vest included 4 cool inserts.



Style 00059 – Economy Lower Temperature Inserts

- Style 00059 is used of blue icing gel; main content is non-toxic and non-flammable CMC gel.
- The phase change temperature is 0°C, in a refrigerator for 120 minutes for totally frozen.
- Last up to 2 hours for cooling.
- Every insert comes with an ice cover, keeping surface cool for more comfortable.
- One Cool Vest included 4 cool inserts.

Cooling wrap

Model: CW20
Size: 85x33cm
Color: Light Blue
Material: PVA



Elastic cooling fabric



Portable Package



Elastic cooling fabric



Portable package

Model: CW30
Size: 24X40cm
Color: Sky blue
Material: Essential cooling fiber

FEATURES

- Poly Vinyl Alcohol (PVA) material can absorb water and sweat efficiently, and natural evaporation provides a cooling sensation delivering comfort in hot environments.
- Three layers: both of inner layer and outer layer are the eco-friendly PVA material, the middle layer is a mesh structure that enhances physical strength.
- Super soft, super thin bubble hole, lint-free and no pilling.
- The material has been gotten the anti-mildew and anti-bacterial treatment.
- Use and Wrap around neck, head, or wipe down other pulse points for an cooling effect.
- Cooling properties can be reactivated for the life of the product; May be used over and over again.

FEATURES

- Cooling instantly, up to 30% cooler surface temperature.
- Fast wicking, soft, comfortable, breathable.
- Essential cooling fiber, keep cool by recycling.
- Seamless and elastic faric, make different styles.
- Chemical free.
- UPF 50+ UV protection.

Code	Product Style	Description
00050C	Cool Vest	Two layers polyester-cotton fabric
00055C	Cool Vest	Polyester-cotton fabric, polyester fiber filling material
00057	Cool Replacement Inserts	Set of 4 cool vest replacement inserts; create climate of 14°C for up to 2-4 hours.
00059	Economy Cool Vest Replacement inserts	Set of 4 cool vest replacement inserts; Every insert comes with an ice cover
CW30	Cooling wrap	Essential cooling fiber
CW20	Cooling wrap	Poly Vinyl Alcohol (PVA)



Heat Protective Clothing



HEAT RESISTANT CLOTHING

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

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

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

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

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

EN11611:2015 Requirements

Program	Test Method	Standard Requirements	
		1 class	2class
Flame resistance performance	ISO 15025-A ISO 15025-B	The mean value of after flame time and afterglow time is less 2 seconds. No melt or molten debris, no holes and no flame to the top or the edge.	
Resistance to molten metal splash	ISO 9150	≥15drops	≥25drops
Radiation heat	ISO 6942 (20kW/m²)	RHTI 24 ≥ 7s	RHTI 24 ≥ 16s



EN11612:2015

Program	Test Method	AHR1000	300 suits	500 suits	700 Suits
Limited flame spread	ISO 15025-A	A1	A1	A1	A1
	ISO 15025-B	A2	A2	A2	A2
Convective heat(B)	ISO 9151	B1	B1	B1	B3
Radiation heat(C)	ISO 6942(20kW/m²)	C3	C3	C4	C4
Molten aluminum splash(D)	ISO 9185	D1	D2	D3	D3
Molten iron splash(E)	ISO 9185	E3	E2	E3	E3
Contact heat(F)	ISO 12127	F2	F1	F1	F3



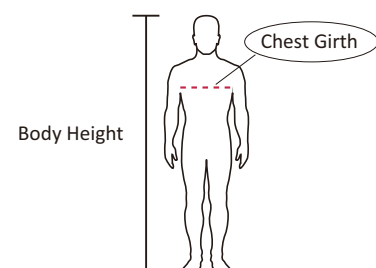
Fabric Structure

AHR1000 Series	Outer Shell	335g/m² Aluminized aramid			
	Lining	7.7 oz/yd² FRC fabric			
300 Series	Outer Shell	100% Aluminized Glass	900 Series	Outer Shell	100% Aluminized Glass
	Lining	None		Lining	1. Fiberglass Insulation
400 Series	Outer Shell	Kevlar Aluminized			2. AL Foil
	Lining	None			3. AL Foil
500 Series	Outer Shell	100% Aluminized Glass			4. Fiberglass Insulation
	Lining	Neoprene Coated Nylon			5. White Fiberglass
700 Series	Outer Shell	100% Aluminized Glass			
	Lining	1. AL Foil			
		2. Fiberglass Insulation			
		3. Neoprene Coated Nylon			

Sizes: (300、400、500、700 Series)

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

Garment Sizes	Chest Girth (cm)
XS	165-169
S	170-174
M	175-179
L	180-184
XL	185-189
XXL	190-200



Sizes: (900 Series)

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

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

AHR1000 SERIES HEAT RESISTANT CLOTHING



MODEL NUMBERS:

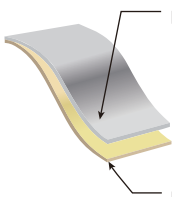
AHR1000	Suit complete		1 Suit/ Case
AHR1000BA	Suit complete, SCBA accommodation	with SCBA	1 Suit/ Case
AHR1500	Coverall complete		1 Suit/ Case
AHR1500BA	Coverall complete, SCBA accommodation	with SCBA	1 Suit/ Case

SUIT COMPONENTS:

AHR117	Hood	
AHR120	Coat	
AHR120BA	Coat	with SCBA
AHR130	Pants	with 136RL suspenders
AHR122	Coverall	
AHR122BA	Coverall	with SCBA
AHR144-02A	Gloves	
AHR132	Chaps	

FEBRIC STRUCTURE:

Meet the requirement of EN 11612:2005:B1 C3 D1 E3 F2



Exterior fabric: 335g/m² Aluminized aramid fabric

1. The reflection of radiant heat is more than 85%
2. The base fabric is aramid, with excellent high temperature resistant and breaking strength.

Inner fabric: 7.7oz/yd² FRC fabric, with excellent moisture absorption, feel soft and comfortable.

FEATURE:

- Suit composition of hood, gloves, chaps, garments and package;
- Series suits are available in coverall or coats and pants styles, with or without SCBA accommodation;
- Series suits come complete with a hood with gold reflective face shield, gloves and chaps.

KEY APPLICATIONS:

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

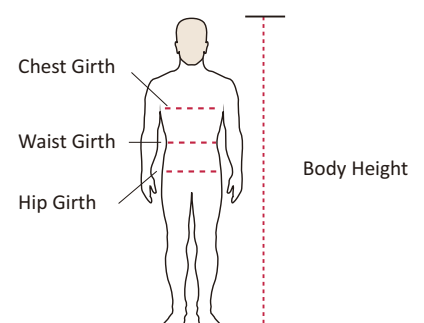
FABRIC PERFORMANCE TEST:

AHR1000 Aluminized outer fabric	Weight	335 g/m ²	
	Thickness	0.50mm	
	Breaking strength	MD	1100N
		CD	570N
	Tearing strength	MD	85N
		CD	90N
	Flame resistance	After flame time	0.7s
		After glow time	0s
		Char length	50mm
AHR1000 fabric	EN 11612 testing result	B1 C3 D1 E3 F2	

Sizes:

COAT	S	M	L	XL	2XL	3XL
Body height (cm)	165	170	175	180	185	190
Chest girth (cm)	121	125	129	133	137	141

PANTS	S	M	L	XL	2XL	3XL
Body height (cm)	165	170	175	180	185	190
Waist girth (cm)	45	47	49	51	53	55
Hip girth (cm)	118	122	126	130	134	138

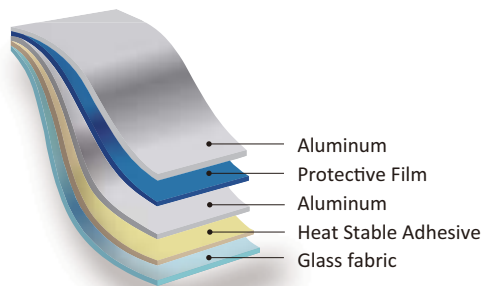


300/305 SERIES APPROACH



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

FEBRIC STRUCTURE:



FEATURES

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

KEY APPLICATIONS

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

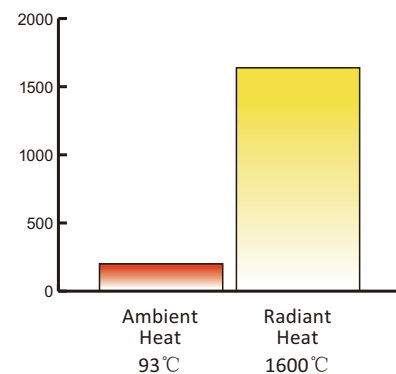
MODEL NUMBERS

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

SUIT COMPONENTS

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

HEAT TOLERANCES



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

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

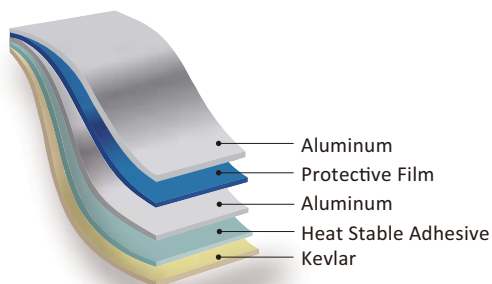
400/405 SERIES APPROACH



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

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

FEBRIC STRUCTURE:



FEATURES

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

KEY APPLICATIONS

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

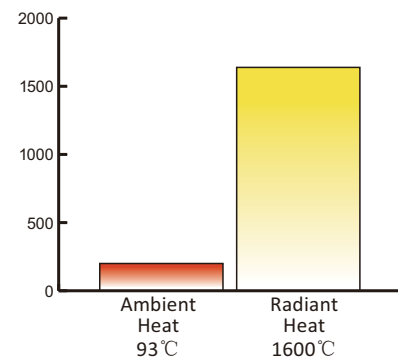
MODEL NUMBERS

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

FABRIC PERFORMANCE TEST

Weight	645g/m ²	
Thickness	1.14mm	
Tensile strength	MD	1779N
	CD	667N
Tear strength	MD	CNM
	CD	200N
Flame resistance	After flame time	2S
	Char length	1.3cm
EN531	A,B2,C4,D2,E3	

HEAT TOLERANCES



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

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

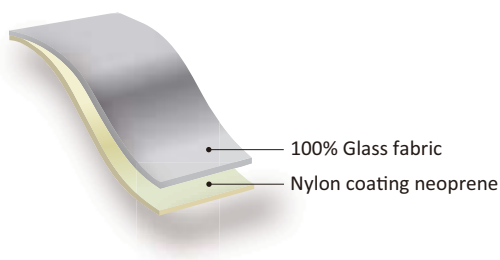
500/505 SERIES APPROACH



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

The 500 and 505 Series Approach Suits are designed for personnel engaged in maintenance, repair and operational tasks in areas of low ambient, high radiant heat. These superior protective approach suits have two layers, outer shell is aluminized glass fabric, and inner layer is nylon coating neoprene fabric for moisture/steam barrier. Therefore, 500 approach suits can be used in area where exposure to hot liquids, steam, or hot vapor.

FEBRIC STRUCTURE:



FEATURES

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

KEY APPLICATIONS

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

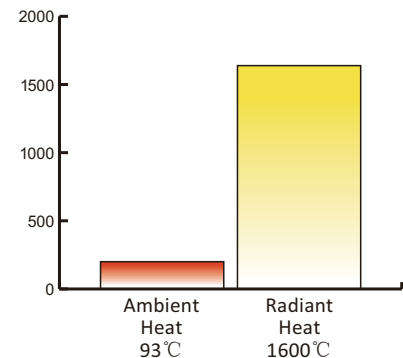
MODEL NUMBERS

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

SUIT COMPONENTS

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

HEAT TOLERANCES



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

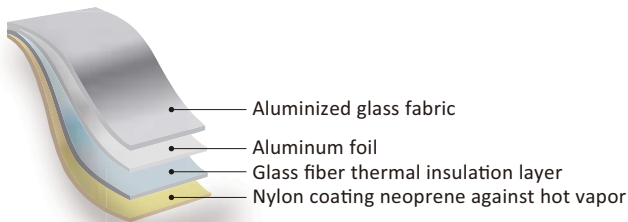
The 500/505 Series Approach Suits are not to be used for fire entry.

700/705 SERIES PROXIMITY SUITS



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

FEBRIC STRUCTURE:



FEATURES

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

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

KEY APPLICATIONS

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

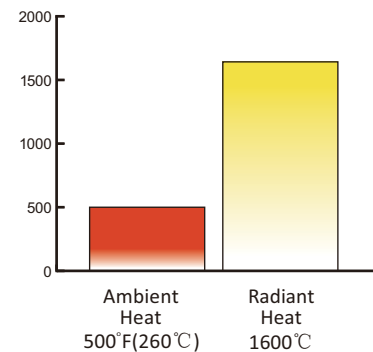
MODEL NUMBERS

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

SUIT COMPONENTS

710	Proximity Hood	
722BA	Proximity Coverall	with SCBA
722	Proximity Coverall	
720BA	Proximity Coat	with SCBA
720	Proximity Coat	
730	Proximity Pants	
755	Proximity Boots	
740	Proximity Mitts	

HEAT TOLERANCES



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

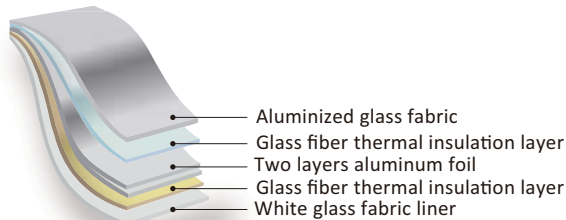
The 700/705 Series Proximity Suits are not to be used for fire entry.

900 SERIES KILN ENTRY SUIT



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

FEBRIC STRUCTURE:



FEATURES

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

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

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

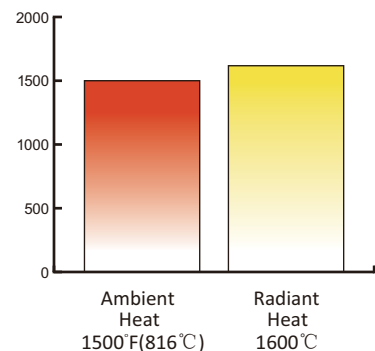
MODEL NUMBERS

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

SUIT COMPONENTS

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

HEAT TOLERANCES



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

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

ACCESSORIES



323-42
Approach Apron



325-48
Approach Smock

These versatile approach aprons offer superior protection against radiant heat. Non-insulated aprons are available in surgeon styles and in various lengths.



317 Approach Hood



310 Approach Hood

Perfect as replacement items for our 500 and 300 series suits or coveralls, these hoods are designed for maintenance, repair and operational tasks in areas of low ambient, high radiant heat.



320-50 Approach Coat



**320-32BA Approach Coat with optional
SCBA accommodation**

Non-insulated approach coats are offered in both the 300 and 500 Series styles. The 500 series has the added benefit of a moisture/steam barrier lining. These coats are ideal as replacements for lost or worn suits, or as the primary protector in situations where only a coat is required.

Replacements coats for 300 and 500 Series suits are offered in 32" (76 cm) lengths. Additional coats are available in 36", 40", 46" and 50" (81 cm, 102 cm, 127 cm) lengths. Coats are offered in sizes Small, Medium, Large, and Extra Large. Also available with SCBA accommodation.



330 Approach Pants



522 Approach Coverall

Fyrepel non-insulated approach pants and overalls are available in either the 500 or 300 series. The 500 series added moisture/steam barrier provides protection from environments where exposure to hot liquids, steam or hot vapor is a possibility. The pants are offered in either a big or waist style, and are a complement to the approach coats. The approach coveralls are offered with the option of SCBA accommodations.

ACCESSORIES



454 Aluminized Approach Boots

Lakeland 454 aluminized approach boots, specially designed for the environment with high temperature, molten metal and mechanical injury risk, provide comprehensive protection. Kevlar thread in the seams which can resist high temperature. Aluminized Kevlar fabric upper which can reflect 95% of radiation heat. Good flame resistant and molten metal splash protection. Flame retardant copper zipper and velcro closure. Impact resistance and pressure toecap. Heat insulating rubber outsole with oil-resistant properties.



355 / 555 Aluminized Approach boots

The 300 series approach boots are noninsulated and are useful for maintenance and operational tasks in areas of low ambient, high radiant heat. The 355AG boots offer a texturized anti-skid neoprene sole with a substrate of high temperature glass.



Chaps 332



Spats 334



**344-02A
300 Series Approach Gloves**



336-18 Aluminized Sleeves



Firefighters Turnout Gear



FIREFIGHTERS TURNOUT GEAR



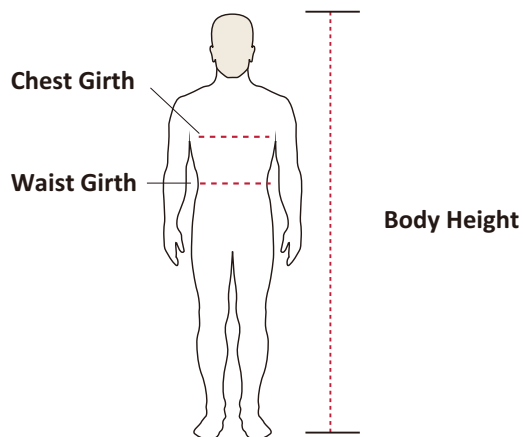
Measuring Instructions

US Sizes for Attack, Battalion™ and Stealth™ Series

Coat Size	S/34	M/38	L/42	XL/46	2XL/50	3XL/54
Body Height	165	170	175	180	185	190
Chest Girth	117	127	137	147	157	167
Sleeve Length	83	86	89	93	97	100

Pants Size	S/30	M/34	L/38	XL/42	2XL/46	3XL/50
Body Height	165	170	175	180	185	190
Waist Girth	87	97	107	117	127	137

Unit: cm



European Sizes for CEOSX1000 Series

size	S	M	L	XL	2XL	3XL
Body Height	165	170	175	180	185	190
Chest Girth	128	132	136	140	148	152
Sleeve Length	81	84	85	86	87	89
Waist Girth	92	100	104	112	116	120
Pants Length	103	103	104	104	105	105

Unit: cm



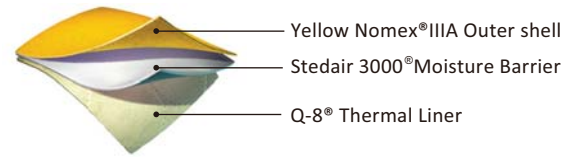
ATTACK™ STANDARD FEATURES



Attack

Compliant to the new 2018 Edition NFPA 1971

Attack Materials



Outer shell

Nomex® IIIA: 93% Nomex®, 5% Kevlar®, 2% P-140 carbon fiber; plain weave. 7.5 oz. per square yard. Shelltite finish for water resistance.

Moisture Barrier

Stedair® 3000: 5.2 oz. per square yard spun Nomex® laminated to an ePTFE membrane. A combination of microporous and monolithic barriers.

Thermal Liner

Q-8®: 8.0 oz/yd² Meta-Aramid / FR Royon batt quilted to a Meta-Aramid / FR Modacrylic plain weave facecloths.

Thermal Protective Performance (TPP) ≥45, Total Heat Loss (THL):215, Conductive and Compressive Heat Resistance (CCHR) >25, DRD Tensile Strength >7KN

Coat

1	35" Length Coat
2	Zipper/Velcro® Closure
3	NFPA Basic Lime/Yellow Scotchlite® Triple Trim Double Stitched
4	"Easy Grip" DRD
5	Low Profile 3" Collar with Hanger Loop
6	Set-In Pleated Ergonomically Curved Sleeves
7	7" Black Kevlar® Thumbhole Wristers
8	5" Deep Black Stedprene Sleeve Wells
9	Black Arashield Coat and Pant Cuff Reinforcements
10	2" x 3.5" x 8" Radio Pocket with Velcro® Antenna Opening on each side of Flap
11	Self Mic Strap above Radio Pocket
12	Universal Flashlight Holder
13	2" x 10" x 10" Coat Expansion Pockets Lined with Kevlar® Twill
14	Liner Inspection Velcro Opening

Pants

15	Pant Closure: Hook & Dee, Snap with Velcro® Fly Closure
16	Black Arashield Double Padded Knees with SideKick Extension Panel
17	Black Arashield Pant Cuff Reinforcements Double Stitched
18	Lime/Yellow Scotchlite® Triple Trim Double Stitched
19	Reverse Boot Cut
20	135R Black-Ops Multi Adjust Suspenders No Metal Suspender Buttons!



4. "Easy Grip" DRD



20. 135R



19.

Available colors

Yellow (normal stock), Black and Red



Sizes

XS-2XL

Case Pack

1 Suit/Case

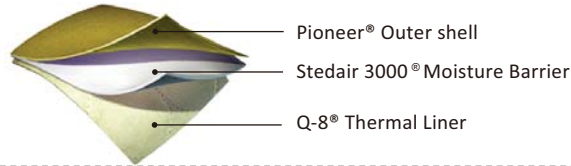
BATTALION™ STANDARD FEATURES



Battalion

Compliant to the new 2018 Edition NFPA 1971

Battalion Materials



Outer shell

Pioneer®: Twill weave with Kevlar® and Nomex®, 6.6 oz/yd², innovative ENFORCE™ Technology, Super Shelltite™ finishing for added water and abrasion resistance.

Moisture Barrier

Stedair® 3000: 5.2 oz. per square yard spun Nomex laminated to an ePTFE membrane. A combination of microporous and monolithic barriers.

Thermal Liner

Q-8®: 8.0 oz/yd² Meta-Aramid / FR Royon batt quilted to a Meta-Aramid / FR Modacrylic plain weave facecloths.

Thermal Protective Performance(TPP) ≥42, Total Heat Loss(THL):222, Conductive and Compressive Heat Resistance(CCHR) >25, DRD Tensile Strength >7KN



4. "Easy Grip" DRD



22. 135S



21.

Coat

1	32" Length Coat
2	Zipper/Velcro® Closure
3	NYC Style Lime/Yellow Scotchlite® Triple Trim Double Stitched
4	"Easy Grip" DRD
5	Low Profile 3" Collar with Hanger Loop
6	Set-In Pleated Ergonomically Curved Sleeves
7	7" Black Kevlar® Thumbhole Wristers
8	5" Deep Black Stedprene Sleeve Wells
9	Black Arashield Coat Cuff Reinforcements Double Stitched
10	2" x 3.5" x 8" Radio Pocket with Velcro® Antenna Opening on each side of Flap
11	Self Mic Strap above Radio Pocket
12	Universal Flashlight Holder
13	2" x 8" x 8" Coat Expansion Pockets with Hand warmer
14	Liner Inspection Velcro® Opening

Pants

15	Lo-Rise Waist Design with small 3" Rear Bib for Overlap Protection
16	Pant Closure: Hook & Dee, Snap with Velcro® Fly Closure
17	2" x 10" x 10" Pant Expansion Pocket lined with Kevlar® Twill
18	Black Arashield Double Padded Knees with Side Kick Extension Panel
19	Black Arashield Pant Cuff Reinforcements Double Stitched
20	Lime/Yellow Scotchlite Triple Trim, Double Stitched
21	Reverse Boot Cut
22	135S Black-Ops Multi Adjust Suspenders, No Metal Suspender Buttons!

Available colors

Khaki (normal stock), Gold



Sizes

XS-2XL

Case Pack

1 Suit/Case



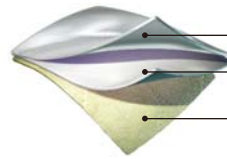
ALUMINIZED ATTACK™



Aluminized Attack

Compliant to the new 2018 Edition NFPA 1971

Attack Proximity Gear Materials



- Aluminized PBI or Aluminized Kevlar Outer Shell
- Stedair 3000® Moisture Barriers
- Q-8® Thermal Liner

Outer shell

Aluminized PBI: 7.0 oz. per square yard, aluminized PBI Ripstop knit.
Aluminized Kevlar: 8.5 oz. per square yard, aluminized Kevlar Ripstop knit.

Moisture Barrier

Stedair®3000: 5.2 oz. per square yard spun Nomex® laminated to an ePTFE membrane.
A combination of microporous and monolithic barriers.

Thermal Liner

Q-8®: 8.0 oz/yd² Meta-Aramid / FR Royon batt quilted to a Meta-Aramid / FR Modacrylic plain weave facecloths.

Aluminized PBI Outer Shell — Thermal Protective Performance(TPP) ≥47, Radiant Heat Reflectance >95%, Tensile Strength> 7KN

Aluminized Kevlar Outer Shell — Thermal Protective Performance(TPP) ≥48, Radiant Heat Reflectance >95%, Tensile Strength> 7KN



3. "Easy Grip" DRD



15. 135R

Coat

1	35" Length Coat
2	Zipper/Velcro® Closure
3	"Easy Grip" DRD
4	Low Profile 3" Collar with Hanger Loop
5	Set-In Pleated Ergonomically Curved Sleeves
6	7" Black Kevlar® Thumbhole Wristers
7	5" Deep Black Stedprene Sleeve Wells
8	Black Arashield Coat and Pant Cuff Reinforcements
9	2" x 10" x 10" Coat Expansion Pockets Lined with Kevlar® Twill
10	Liner Inspection Velcro Opening

Pants

11	Pant Closure: Hook & Dee, Snap with Velcro® Fly Closure
12	Arashield® reinforced knees for increased liquid resistance and maximum durability.
13	Black Arashield Pant Cuff Reinforcements Double Stitched
14	Reverse Boot Cut
15	135R Black-Ops Multi Adjust Suspenders No Metal Suspender Buttons!

Available colors

Silver

Sizes

XS-2XL

Case Pack

1 Suit/Case

STEALTH™ / Premium Turnout Gear



Stealth

Compliant to the new 2018 Edition NFPA 1971

STEALTH™ Materials



Outer shell

Kombat Flex: 6.9oz. per square yard . Durable fabric, High thermal stability.

Moisture Barrier

Stedair® 3000: 5.2 oz. per square yard spun Nomex laminated to an ePTFE membrane. A combination of microporous and monolithic barriers.

Thermal Liner

Defender M NP: 7.0 oz/yd² Two layers flat Kevlar® and Nomex® spun lace quilted to a Lenzing FR® / Kevlar® / Nylon plain weave facecloths.

Thermal Protective Performance(TPP) ≥42, Total Heat Loss(THL):240, Conductive and Compressive Heat Resistance(CCHR) >25, DRD Tensile Strength >7KN

Stealth Coat

1.	Beveled Hem, 29" Front, 35" Back, graded to size.
2.	Zipper/Velcro Closure
3.	NYC Style Lime/Yellow Scotchlite Triple Trim, Double Stitched
4.	Ergonomic Pleated Back/Shoulders
5.	"Easy Grip" DRD
6.	Internal Outer Shell Draw Cord to reduce bulk
7.	Napoleon Pocket under Storm Flap
8.	Low Profile 3" Collar with Hanger Loop
9.	Set-In Pleated Ergonomically Curved Sleeves
10.	7" Black Kevlar® Thumbhole Wristers
11.	5" Deep Black Stedprene Sleeve Wells
12.	Black Arashield Coat Cuff Reinforcements – Double Stitched
13.	2" x 3.5" x 8" Radio Pocket with Velcro® Antenna Opening on each side of Flap
14.	Self Mic Strap above Radio Pocket
15.	Universal Flashlight Holder
16.	2" x 8" x 8" Coat Expansion Pockets with Hand warmer
17.	Liner Inspection Velcro Opening
18.	LazerMax™ Trim

Stealth Pants

19.	Beveled Waist Design – Lo front with slight rise to wards rear
20.	Pant Closure: 2" Wide Black Kevlar® Belt with belt Loop/Handle Grips, Snap and Velcro® Fly Closure
21.	Single Lower Leg Panel with center rear seam – no side seams exposed to abrasion
22.	2" x 10" x 10" Pant Expansion Pocket lined withKevlar® Twill
23.	Black Arashield Double Padded Knees with Side Kick Extension Panel
24.	Black Arashield Pant Cuff Reinforcements – Double Stitched
25.	Lime/Yellow Scotchlite Triple Trim – Double Stitched
26.	Reverse Boot Cut
27.	Black-Ops Multi Adjust Suspenders – No Metal Suspender Buttons!
28.	Lazer Max Trim



5. "Easy Grip" DRD



27. 135R



26.

Available colors	Sizes	Case Pack
Black, Natural	XS-2XL	1 Suit/Case

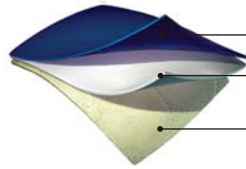
CE FIRE FIGHTING SUITS



CEOSX1000

- CEOSX1000 is the new fire fighting gear designed and developed by Lakeland which includes coat and bib pants, and has got the EN469-2005 certification.
- The garment material has three layers, and that is outer shell, moisture and insulation layer and liner for comfort.

CEOSX1000 Materials



- Rip-stop aramid FR fabric
- Waterproof breathable membrane on aramid felted thermal barrier
- Lenzing FR fabric

EN469:2005



Xf2, Xr2, Y2, Z2

Outer shell

Outer shell: Rip-stop fabric, 75%Meta-aramid/23%Para-aramid/2%Anti-static,203g/m²

Moisture Barrier

Moisture and heat insulation layer: 12%Waterproof breathable membrane on meta-aramid/88%para-aramid felted thermal barrier ,170g/m²

Thermal Liner

Liner: 50%FR modacrylic /50%Lenzing fabric, soft and comfortable with excellent FR resistance 120g/m²

Coat

1	Throat tab features scooped design for a better interface with helmet, shroud and SCBA mask.
2	Radio Pocket with a leaking hole on left chest, has velcro on the top, can hang firefighter badges, Flashlight snap and strap on right.
3	Ergonomically correct 2-panel curved sleeve follows arm range of movement.
4	Underarm gusset allows arms to be raised with minimal coat rise.
5	Flame retardant elastic knitted cuff design, prevent high temperature small objects or burning ashes into the cuff.
6	Kevlar knit wrists.
7	Coat pocket(With Drainage grommets).
8	"Easy Grip" DRD (Drag Rescue Device) can be employed with one hand.
9	7.5cm 3M reflective stripe.
10	Jacket liner inspection port.

Pants

11	4-piece design.
12	Double stitched major seams with 8-10 stitches per inch.
13	Liner inspection opening.
14	Nomex twill take up straps.
15	Pants pockets on both side, Rescue tools can be placed.
16	Three diamond-shaped gussets can reduce the stress on the crotch and increase abrasion resistance.
17	Knee reinforcements. Increased water resistance and abrasion resistance.
18	Waterproof fabric stitched at the end, prevent siphon.
19	7.5cm 3M reflective stripe.
20	8-point X-back suspenders.



8. DRD Device



10. 136RL

Available colors

Navy, Yellow  

Sizes

S-3XL

Case Pack

1 Suit/Case

ACCESSORIES

Magma Helmet

Choose your personalized Magma from two unique configurations, Type A (half size shell) or Type B (Three-quarter size shell) with an unified look. Sleek design accommodates a wide variety of accessories and electronic components. Magma can be easily reconfigured for new applications; it offers the lowest weight and the most superior comfort in its class with EN443-2008 certification.



Magma A



Magma B

LTX Helmet

NFPA1971-2018 certification, Durable heat-resistance thermoplastic shell, Sure-Lock ratchet headband, Rip-stop Nomex ear/neck protector, 4" PPC face shield, Scotchlite reflective stripes retains reflectively to 260 °C with no burning, cracking or peeling. Stainless steel D-ring allows you to hang your helmet on virtually any size hook. Three position ratchet height adjuster base of 12-point comfort system.



268AX Helmet

NFPA Aluminized PBI/ Kevlar cover with shroud.

268AX helmet is designed to perform effectively against adverse the environmental conditions of proximity fire fighting incidents with high level of radiant convective and conductive heat which meets NFPA1971-2018. Fiberglass outer shell is for against chemicals and heat, Aluminized helmet cover features an elastic edge binding and Velcro tabs for easy installation and a secure fit over the outer shell and eight snaps for attaching to the aluminized shroud which is aluminized PBI/Kevlar to block ingress of heat and foreign matter.



119NM-NFPA

6oz. Nomex® Blend knit hood.

Composed of Two layers throughout, both outer shell and lining are a blend of UL classified to meet NFPA1971-2018 Edition, Compliant with NFPA 70E2004 Edition and meets performance specifications of ASTM F 1506. ARC Rating: 8.8 with Hazard/Risk category 2.



119NM-GA

Style number: RMT-L-NMX

Composed of two layers 231gsm nomex fabric. Comply with GA 869-2010 cert. and the weight is only 112g.

Available color: grey, navy blue



ACCESSORIES

344-11SG NFPA Leather

Glove with knit wristlets and vapor barrier lining.

The glove meets the requirements of the latest NFPA 1971 standards. Outer shell of the glove is 4.0 oz Koala Tanned leather which will remain soft after repeated soakings. Thermal barrier is 8.0 oz modacrylic Fleece laminated to Gore RT7100. Wristlets are 4" long with double 10.5oz Nomex knitting. Sewn with high burst strength Kevlar (30/5) thread, all seams are sealed with a DuPont silicone sealant, which ensures that liquids do not come in contact with the hand or hand area.



344-10 NFPA Leather

NFPA 1971, 2018 EDITION

Outer shell is made from heavy weight, fire retardant 3.5 oz. gold cowhide leather, which is still soft and comfortable after times of washing; Polyurethane film moisture barrier for keeping hands dry; 6.0 oz. non-woven modacrylic thermal layer provides flame resistance and thermal protection; Double layers Kevlar wristlet for secure fit and carefree protection, leather pull tab on the inner wrist; Leather patch is sewn on palm for heavy duty; Fire retardant cowhide hanger loop; High burst strength Kevlar thread.



7993 CE Firefighting Gloves



EN659

EN388

EN407

Outer shell is made from high quality cow leather, which is heat and fire resistant. Leather patch sewn in the crotch area for heavy duty. Knitted Kevlar fabric liner for extra anti-cutting protection, fire & heat resistant. Flame retardant water-proof insert bag for keeping hands dry. Four ply knitted Kevlar wristlet for secure fit & carefree protection. Leather pull tab on the inner wrist offers special wrist protection & ease donning. Kevlar stitching enhances durability.



Black Ops™ Suspenders

Suspenders can be adjusted along the waistband to accommodate any torso. The unique design prevents the suspenders from slipping off the shoulders. Adjustable center sternum strap keeps the suspenders in position. Independent yoke system that curves around neck and front for better fit. Vertical tabs for stowing mic or accessories. Suspenders attach to pants with snap-tabs and segregated MOLLE style loops. Rip-cord style pulls easily adjust length and fit. 135R is for Attack and Stealth styles, 135S is for Battalion style.



ACCESSORIES



12171-2V(Y) CE firefighting boots

Fully waterproof, hand-built rubber structural firefighters' boot. All-purpose Type 2 structural firefighting boot. Complies with EN ISO 20345:2011, EN 15090:2012 Type 2 E, P, HI3, HRO, SRC, and electrically insulating. Specially formulated upper compound provides protection against heat and flame whilst also maintaining excellent physical properties. The outsole is resistant to chemicals as well as heat and flame.



9692 NFPA Firefighting Boots

Meets NFPA 1971:2013 standard, 11" height; Vulcanized rubber upper and sole, resistant towards strong acids and alkalis; Steel toecap and midsole, meets ASTM F2413-11 impact and compression tests; Protects against dry electric hazard up to 14KV; Triple ribbed ladder shank for improved midfoot stability and support, non-woven felt lining.



PKG15

Sizes:
45cm(H)×45cm(W)×76cm(L)





Flame Resistant Clothing



FLAME RESISTANT CLOTHING

Why to wear flame resistant garment?

It's necessary to wear flame resistant garment in flammable condition. The FR fabric of flame resistant garment can reduce the burning rate and stop burning once away from the fire. FR fabric will carbonize without melting drip when it's on fire, so it will give workers enough time to run away from fire or take off the burning garment to avoid or alleviate burn and scald.

Which professionals can flame resistant garment be used for?






Workers in the petroleum, petrochemical, fire service, and other professionals that may be exposed to flash fire.

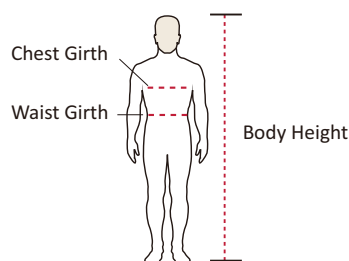
Standards of flame resistant garment

American Standards

- NFPA 2112: Standard on Flame-Resistant Garments for Protection of Industrial Personnel against Flash Fire
- ASTM F-1930: Standard Test Method for Evaluation of Flame Resistant Clothing for Protection Against Flash Fire Simulations Using an Instrumented Manikin

European Standards

 EN11612	EN11612: Protective clothing — Clothing to protect against heat and flame
 EN11611	EN11611: Protective clothing for use in welding and allied processes
 EN61482-1-2	EN61482-1-2: Protective clothing against the thermal hazards of an electric arc
 EN1149-5	EN1149-5: Protective clothing — Electrostatic properties
 Type 6	Type 6: Suits which offer limited protection against a light spray of liquid chemicals



Sizes: (cm)

	XS	S	M	L	XL	2XL	3XL
Body Height	153-158	158-163	163-168	168-173	173-178	178-183	183-188
Sleeve Length	56	57	58	59	60	61	62
Chest Girth	112	116	120	124	128	132	136
Shoulder Breadth	44	46	48	50	52	54	56
Outseam	98	100	102	104	106	108	110
Waist Girth	78	82	86	90	94	98	102

SELECTION GUIDE FOR FLAME RESISTANT GARMENT

Step 1 Fabric Selection

- Lakeland supplies multiple choices of fabrics with different features. Please refer to P47 for detailed information.
- Every fabric has different weight for your choice.
High weight: suitable for autumn and winter
Low weight: suitable for spring and summer



Step 2 Styles Selection

Lakeland supplies multiple choices of styles and we also can design according to customers' requirements.

Fabric	FRC		TSP	NMX		DH	TenCate Oasis
Fiber Blend	100% FR cotton		100%Tecasafe Plus (48%FR-modacrylic +37%lyocell+15% aramid)	100%NomexIIIA(93% NOMEX®+5%KEVLAR® +2%P140 antistatic fiber)		48%Tencel+ 40%modacrylic +12%aramid	50% Lenzing FR fiber+40%wool +10%nylon
Weight(+5%)							
grams(sq meters)	306g	260g	238g	153g	204g	220g	255g
oz(sq yd)	9.0oz	7.7oz	7.0oz	4.5oz	6.0oz	6.5oz	7.5oz
Flame Resistant Type	Treatment flame resistant		Inherently flame resistant	Inherently flame resistant	Inherently flame resistant	Inherently flame resistant	Inherently flame resistant
Price	Low		Medium	High	Medium		
Daily Cost	High		Low	Medium		Low	
Protection	Flash Fire Arc Flash Antistatic		Flash Fire Arc Flash	Flash Fire Arc Flash Antistatic		Flash Fire Arc Flash Antistatic	_____
Comfort	★★★★		★★★★★	★★★★		★★★★★	
EN Standards	_____	_____	_____	_____		EN11612	EN11612 EN373
NFPA 2112	✓	✓	✓	✓		✓	_____



Fabric Recommendation

DH Inherent FR Fabric

48%Tencel 40% modacrylic 12% aramid

- Lakeland DH FR Garment is designed to provide a solution that bridges a vast number of industries and adheres to the most important performance standards. FR regulations, such as NFPA 70E, and NFPA 2112.
- Lakeland DH FR Garment is designed with inherent FR properties; protection is built into the fiber. Normal laundry conditions will not adversely affect the performance of the garment.
- The fabric is designed to not melt, stick, or drip when exposed to extreme temperature or flame.
- Under normal wear condition, Lakeland DH FR Garment can provide years of dependable and reliable service.
- Lakeland DH FR Garment is designed to provide comfort with performance and a high level of aesthetics. Natural feel is a result of a high percentage in the blend of Tencel, a hydrophilic fiber that enhances comfort.
- Economic, cost-effective.

TenCate Oasis Premium Molten Metal Splash Protection

50% Lenzing FR fiber+40% wool+10% nylon

TenCate Oasis is an innovative protective fabric that offers incredible softness, has a lightweight feel and is flexible. It is designed to deliver premium protection against molten metal splash, radiant heat, flame and other smelting hazards. An outstanding value and the best choice among thermal resistant, metal-shedding fabrics, it has been chosen by leading aluminum manufacturers, worldwide, for its protection, comfort and durability.

- Inherently flame-resistant – Flame-resistant, metal shedding protection is built into the fabric, so it won't wash or wear out.
- Comfortable to wear – Engineered with an innovative fiber blend, this fabric is designed for excellent softness and flexibility.
- Outstanding value – Long-lasting protection withstands rugged use and repeated industrial launderings.

FRC 260/306 Economic and Comfortable Flame Resistant Fabric

100% FR cotton

- Comfortable and soft
- Antistatic
- Economic and Durable



FLAME RESISTANT CLOTHING STYLES

Omega Coverall

- 2 chest pockets
- Heavy duty, two-way quick release brass zipper
- 2 hip pockets
- Bi-swing back with elasticized waistband
- Adjustable sleeve cuffs
- NFPA certified style



Classic Style Jacket

- Brass zipper, front closure with a snap
- 2 chest pockets with flap closure
- Adjustable sleeve cuffs and jacket bottom



Classic Style Pants

- 2 front hip pockets
- 2 hip pockets
- 2 pockets for tolls can be added in legs' sides



FLAME RESISTANT CLOTHING STYLES

Sigma Coverall



- Pop-stud front fastening
- Elasticized waist
- 2 chest pockets
- 2 side pockets
- 1 left hip pocket
- Contrast stitching (orange unless specified)

Package: 1 pcs/bag

Alpha Coverall



- Two-way collar-button up or wear down
- Certified FR reflective strip to arms and legs
- 2 chest pockets
- 2 pants pockets(with "pass throughs")
- 2 hip pockets
- 1 tool pocket/hammer loop
- Contrast color pocket lining and detailed stitching (orange unless specified)
- EN standard certified style

Package: 1 pcs/bag

JT Jacket



- Jacket with collar
- Front enclosure with snap
- 2 chest pockets
- Adjustable sleeves cuffs
- Bi-swing back with elasticized waistband
- Contrast color pockets & collar lining (orange unless specified)
- EN standard certified style

Package: 1 pcs/bag

PT Pants



- Front enclosure with FR zipper and button
- Contrast color pockets & waist lining (orange unless specified)
- 2 side pockets
- 2 hip pockets
- Elasticized waist with belt loop
- Adjustable pants bottom
- EN standard certified style

Package: 1 pcs /bag

BJT Jacket



- Flap over collar
- Front enclosure with snap
- 1 chest pocket with snap
- 2 lateral insert hand warm pockets with Velcro closure
- Adjustable cuff by velcro
- Adjustable cuff by velcro
- Elasticized bottom
- EN standard certified style

Package: 1 pcs/bag

TS Bib Pants



- Bib and Brace Pants
- Two hang tapes with buckles
- 1 front pocket on front flap
- 2 lateral slit pockets
- 1 hip pocket
- 1 tool pocket
- 1 hang loop for tool
- Velcro on leg opening for adjustment;
- Elasticized waistband;
- Contrasted color fabric for pockets;
- FR aramid tape brass zipper for front closure
- EN standard certified style

Package: 1 pcs/bag

LSH Long Sleeves Shirt



- Flap over collar
- 2 chest pockets
- Front enclosure with snap
- Contrast color pockets & collar lining (orange unless specified)
- EN standard certified style

Vented-Back Shirt



- 2 chest pockets with Velcro® closures
- Extra-long shirt tail
- Sleeve straps
- Sleeve pocket
- Tapered aramid mesh vented back



Arc Flash Protective Clothing



ARC FLASH PROTECTIVE CLOTHING

Introduction to Arc Flash Protection

Arc Flash

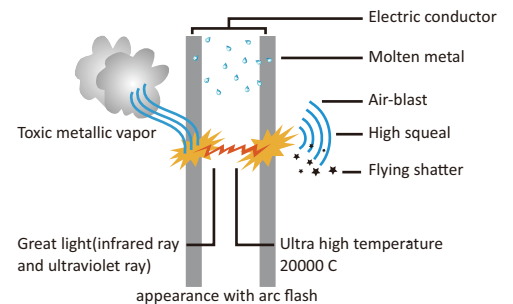
- An arc flash is the light and heat produced from an electric arc supplied with sufficient electrical energy to cause substantial damage, harm, fire, or injury.

Arc Flash Hazard

- Arc flash temperatures can reach or exceed 35,000 °F (19,400 °C) at the arc terminals. The massive energy released in the fault rapidly vaporizes the metal conductors involved, blasting molten metal and expanding plasma outward with extraordinary force.
- A typical arc flash incident can be inconsequential but could conceivably easily produce a more severe explosion. The result of the violent event can cause destruction of equipment involved, fire, and injury not only to an electrical worker but also to bystanders.

Arc Flash Accident

- According to NFPA report, 5-10 accidents happen in United States every day, and more than 2000 deaths in Arc Flash accident every year.
- Average annual electrical accidents in France are more than 125 cases. Arc flash accident accounted for 77%, permanent disability accounted for 21%, and deaths from 30 cases.



Important Safety Recommendations: NFPA70E

Hazard Level 1



Garment description:
FR Shirt and FR
pants or FR
Coverall.

ATPV: 4-8 cal/cm²

Hazard Level 2



Garment description:
Cotton underwear,
FR Shirt and FR
pants.

ATPV: 8-25 cal/cm²

Hazard Level 3



Garment description:
Cotton underwear,
FR shirt, pants or
cotton underwear
plus two FR
coveralls.

ATPV: 25-40 cal/cm²

Hazard Level 4



Garment description:
Cotton
underwear, FR
shirt, FR pants,
Multilayer arc
flash suit.

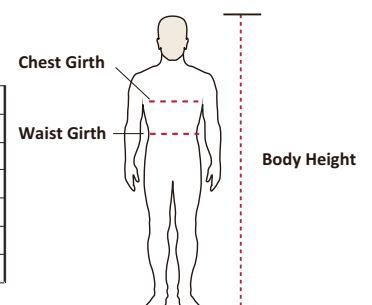
ATPV: >40 cal/cm²

cal/cm² ----- Thermal Units
1 cal ----- 1 gram of water temperature rises to 1°C .
1cal/cm² ----- Equivalent to put a finger on the energy released by
burning a cigarette for 1 second.
1~2cal/cm² energy can cause second degree burns.

ATPV (Arc Thermal Performance Value)
-----used to characterize arc flash protection capability
of fabrics. If the energy produced from electric arc in
accident is less than ATPV of the fabric, the garment
can protect workers from second and above burns.

Sizes: (cm)

	XS	S	M	L	XL	2XL	3XL
Body Height	153-158	158-163	163-168	168-173	173-178	178-183	183-188
Sleeve Length	56	57	58	59	60	61	62
Chest Girth	112	116	120	124	128	132	136
Shoulder Breadth	44	46	48	50	52	54	56
Outseam	98	100	102	104	106	108	110
Waist Girth	78	82	86	90	94	98	102




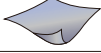
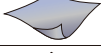






ARC FLASH PROTECTIVE CLOTHING

Selection Guide for Arc Flash Protective Garment

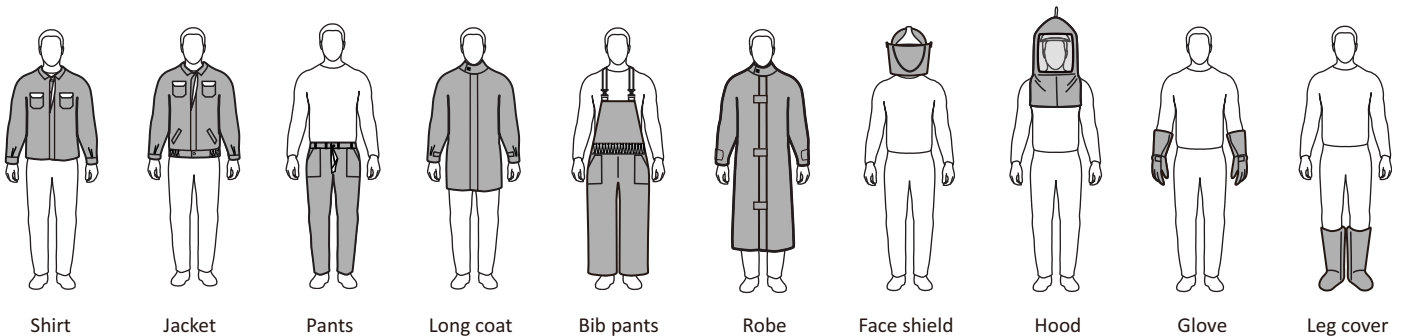
Lakeland Arc Flash Protective Garment is made of high standard of arc flash resistant fabric.

- **Lenzing Arc Stopper (LAS)** ---- LAS fabric is made of Lenzing FR fiber and aramid fiber. Lenzing FR fiber is produced from nature raw material, which offers protection against heat and flame in a variety of different applications with the features of comfort, soft, breathability and skin-friendliness. It meets the requirements of USDA and Oeko-Tex Standard 100.
- **Tecasafe Plus (TSP)**---- TSP fabric is made of 48% FR-modacrylic, 37% Lyocell and 15% aramid, which offers inherent protection with the features of comfort, softness and breathability. It's tested according to ASTM F 1959 and meets the requirements of NFPA 70E.
- **Indura Ultra Soft (IUS)** ---- IUS fabric is made of 88% FR cotton and 12% which has high arc protective performance with the features of softness and durability. It's tested according to ASTM F 1959 and meets the requirements of NFPA 70E.
- **DH**----- DH fabric is made of 48% Tencel, 40% modacrylic and 12% aramid. It's a dual-hazard fabric that protects against both flash fire and electric arc, which meets the requirements of NFPA 2112.

Hazard Level and Fabric Introduction

	CAT Level	Fabric Introduction	Fabric Description(OZ)	ATPV(cal/cm ²)
AR8	CAT2		7.7 oz LAS	8
AR8	CAT2		6.5 oz DH	8.9
AR8	CAT2		7.0 oz TSP	9
AR12	CAT2		9.0 oz IUS	12.4
AR16	CAT2		8.3 oz LAS	16
AR26	CAT3		6.5 oz DH+6.5 oz DH	26
AR33	CAT3		7.0 oz TSP+7.0 oz TSP	33.2
AR43	CAT4		7.0 oz TSP+7.0 oz TSP+7.0 oz TSP	43
AR48	CAT4		6.5 oz DH+6.5 oz DH+6.5 oz DH	48

Style:



Color: Navy  Royal 

ARC FLASH PROTECTIVE CLOTHING

Arc Flash Protective Face Shield



- Made from high polymer and manufactured by injection molding.
- With helmet bracket and buckle.
- 8cal/cm² without mandibular protection, 10cal/cm² and 12cal/cm² with mandibular protection.
- Ultra-wide field of view (shield size: 7.25"~10" x 18.5"~20", thickness: 0.06"~0.75").
- Up to 60% Visible Light Transmittance.
- Harmful ultraviolet radiation can be absorbed.
- With anti-fog coating.
- Adequate facial space for head movement and neck protection.

Product Code	ATPV	Description
ARC-SK2-8	8cal/cm ²	Without mandibular protection. With visor bracket and elastic belt.
ARC-FS-12	12cal/cm ²	With mandibular protection. With visor bracket and slot adaptor.
ARC-APS-12	12cal/cm ²	Highly Transparent Arc Flash Protection kit with small profile transparent chin protector & cap bracket for slotted & non-slotted caps.

Arc Flash Protective Hood



- Above HRC3.
- Arc shield and fabric are connected by flame retardant buckle. Easy to clean.
- With hanging ring on the top for easy storage.
- With helmet bracket and buckle, helmet can be assembled inside the hood.
- Anti-fog coating.
- Adequate space for head movement.
- Hood overlapped the coat for safety.
- ATPV value is on the lower left corner of front side.

Product Code	ATPV	Description
AR26HD	25cal/cm ²	Arc shield 50cal/cm ² , fabric 26cal/cm ²
AR33HD	33.2cal/cm ²	Arc shield 50cal/cm ² , fabric 33.2cal/cm ²
AR43HD	43cal/cm ²	Arc shield 50cal/cm ² , fabric 43cal/cm ²
AR48HD	48cal/cm ²	Arc shield 50cal/cm ² , fabric 48cal/cm ²

Arc Flash Protective Shirt



- Three protective levels: 8cal/cm², 8.9cal/cm², 9cal/cm².
- Soft, breathable and very comfortable.
- Two chest pockets, ATPV value above the left chest pocket.
- Resin buttons, curved hem.
- Suitable for spring and summer.

Product Code	ATPV	Description
AR8-S-LAS	8cal/cm ²	7.7 oz Lenzing Arc Stopper
AR8-S-DH	8.9cal/cm ²	6.5 oz DH
AR8-S-TSP	9cal/cm ²	7.0 oz Tecasafe plus

Arc Flash Protective Jacket



- Different protective levels:
- 8cal/cm², 8.9cal/cm², 9cal/cm², 12.4cal/cm², 16cal/cm², 26cal/cm², 33.2 cal/cm².
- Sewed with Nomex.
- Double closure, covered button under outer closure.
- Hard resin zipper.
- Sandwich design on the front side.
- Two chest pockets.
- ATPV value above the left chest pocket.
- Two side pockets.
- Hem elastic design.
- Without arc induced metal accessories.

Product Code	ATPV	Description
AR8-J-LAS	8cal/cm ²	7.7 oz Lenzing Arc Stopper
AR8-J-DH	8.9cal/cm ²	6.5 oz DH
AR8-J-TSP	9cal/cm ²	7.0 oz Tecasafe plus
AR12-J-IUS	12.4cal/cm ²	9.0 oz Indura Ultra Soft
AR16-J-LAS	16cal/cm ²	8.3 oz Lenzing Arc Stopper
AR26-J-DH	26cal/cm ²	2 layers 6.5 oz DH
AR33-J-TSP	33.2cal/cm ²	2 layers 7.0 oz Tecasafe plus

Arc Flash Protective Pants



- Different protective levels:
- 8cal/cm², 8.9cal/cm², 9cal/cm², 12.4cal/cm², 16cal/cm², 26cal/cm², 33.2 cal/cm².
- Sewed with Nomex.
- Two side pockets, two back pockets, ATPV value on the right back pocket.
- Used in conjunction with Arc Flash Protective Jacket.
- Without arc induced metal accessories.

Product Code	ATPV	Description
AR8-P-LAS	8cal/cm ²	7.7 oz Lenzing Arc Stopper
AR8-P-DH	8.9cal/cm ²	6.5 oz DH
AR8-P-TSP	9cal/cm ²	7.0 oz Tecasafe plus
AR12-P-IUS	12.4cal/cm ²	9.0 oz Indura Ultra Soft
AR16-P-LAS	16cal/cm ²	8.3 oz Lenzing Arc Stopper
AR26-P-DH	26cal/cm ²	2 layers 6.5 oz DH
AR33-P-TSP	33.2cal/cm ²	2 layers 7.0 oz Tecasafe plus

ARC FLASH PROTECTIVE CLOTHING

Arc Flash Protective Robe



Different protective levels:

- 12.4cal/cm², 16cal/cm², 26cal/cm², 33.2cal/cm², 43cal/cm², 48cal/cm² . • 5cm wide FR velcro front closure with 3 cross Velcro for reinforcement. • Stand-up collar for better protection. • Velcro closure cuff of sleeves. • Can be used with our arc protective hood, gloves and boot covers. • No metal accessories which may induce arc flash accident.

Product Code	ATPV	Description
AR12-R-IUS	12.4cal/cm ²	9.0 oz Indura Ultra Soft
AR16-R-LAS	16cal/cm ²	8.3 oz Lenzing Arc Stopper
AR26-R-DH	26cal/cm ²	2 layers 6.5 oz DH
AR33-R-TSP	33.2cal/cm ²	2 layers 7.0 oz Tecasafe plus
AR43-R-TSP	43cal/cm ²	3 layers 7.0 oz Tecasafe plus
AR48-R-DH	48cal/cm ²	3 layers 6.5 oz DH

Arc Flash Protective Long Coat and Bib Pants

Long Coat

Different protective levels:

- 26cal/cm², 33.2cal/cm², 43cal/cm², 48cal/cm² . • 32" length for full coverage. • Stand-up collar for better protection. • FR velcro front closure. • Raglan sleeves design offers superior freedom of movement. • No metal accessories which may induce arc flash accident.

Bib Pants

Different protective levels:

- 26cal/cm², 33.2cal/cm², 43cal/cm², 48cal/cm² . • Bib style for comfort wearing. • Adjustable loop and buckles on bib strap. • Tear drop style swing pockets hold plenty items. • Velcro leg openings with gussets make for easy on and off. • No metal accessories which may induce arc flash accident.



Long Coat

Bib Pants

Product Code		ATPV	Description
Long Coat	Bib Pants		
AR26SC	AR26BO	26cal/cm ²	2 layers 6.5 oz DH
AR33SC	AR33BO	33.2cal/cm ²	2 layers 7.0 oz Tecasafe plus
AR43SC	AR43BO	43cal/cm ²	3 layers 7.0 oz Tecasafe plus
AR48SC	AR48BO	48cal/cm ²	3 layers 6.5 oz DH

Arc Flash Protective Gloves and Leg covers

- 40cm length gloves for full coverage with sleeves. • Leg covers can be used with boots or insulated shoes. • Gloves and Leg covers can be used with coat and pants.



Gloves

Leg covers

Product Code		ATPV	Description
Gloves	Leg covers		
AR16-G-LAS	AR16-C-LAS	16cal/cm ²	8.3 oz Lenzing Arc Stopper
AR43-G-TSP	AR43-C-TSP	43cal/cm ²	3 layers 7.0 oz Tecasafe plus
AR48-G-DH	AR48-C-DH	48cal/cm ²	3 layers 6.5 oz DH

Color:

- 16cal: Navy Blue ●
 43cal: Navy Blue ●
 48cal: Navy Blue, Royal Blue ● ●

ARC FLASH PROTECTIVE CLOTHING

Lakeland can supply different grades of arc flash protective suits made of different fabric, which can meet the requirements of arc flash protection in different workplaces.

Fabric Recommendation

- DH: inherently FR fabric. Soft and comfortable. Excellent protection against arc flash. Low cost.
- Tecasafe Plus(TSP): inherently FR fabric. Excellent protection against arc flash.

CAT and ATPV

CAT3: 26cal/cm² (2 layers 6.5oz DH fabric) 33cal/cm² (2 layers 7.0oz TSP)
 CAT4: 43cal/cm² (3 layers 7.0oz TSP) 48cal/cm² (3 layers 6.5oz DH fabric)

Arc Flash Protective Hood

- Arc shield and fabric are connected by flame retardant buckle.
- Easy to clean. With hanging ring on the top for easy storage.
- With helmet bracket and buckle, helmet can be assembled inside the hood.
- Anti-fog coating.
- Adequate space for head movement.
- Hood overlapped the coat for safety.
- ATPV values on the lower left corner of front side.



Long Coat

- 32" length for full coverage. Stand up collar for better protection.
- FR Velcro front closure.
- Raglan sleeve design offers superior freedom of movement.
- No metal accessories which may induct arc flash accident.



Bib Pants

- Bib style for comfort wearing.
- Adjustable loop and buckles on bib strap.
- Tear drop style swing pockets hold plenty items.
- Velcro leg openings with gussets make for easy on and off.
- No metal accessories which may induct arc flash accident.



Arc Flash Protective Gloves

- 40cm length gloves for full coverage with sleeves.
- Can be used with coat.



Arc Flash Protective Leg covers

- Leg covers can be used with boots or insulated shoes.
- Can be used with pants.



Carry Bag

Arc flash protective suit can be put into the carry bag.



ARC TECH® PREMIUM QUALITY

Hi-vis • FR • ARC • Chemical Resistance • Rainproof

Be Seen, Safe and Dry in ANSI Certified FR/ARC Rated PU/PVC Hi Vis Rainwear.



Product Specification:

- Fabric: PU coated with FR Cotton
PVC coated with aramid
- Flame resistance and arc flash protection, meeting the requirements of CAT2.
- Good protection against ordinary chemicals.
- Softness and pliability make it less prone to get caught on branches and brush.
- Superior puncture, tear and abrasion resistance.
- Reinforced HF welded, sealed and taped seams for maximum strength.
- Innovative DRP™ Diamond Reinforced Patch to prevent crotch "blow out".
- Save money in the long run.

Certification:

- ASTM1891 • ASTM F2733 • ASTM F903
- ASTM1891: Standard Specification for Arc and Flame Resistant Rainwear
- ASTM F2733: Standard Specification for Flame-Resistant Rainwear for Protection against Flame Hazards
- ASTM F903: Standard Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Liquids
- Jacket: ANSI 107 Class 3
- Bib Overall: ANSI 107 Class E

Product Code:

PU coated with FR Cotton

- Jacket: AJPU10LY
 - Bib Overall: ABPU10LY
- #### PVC coated with aramid
- Jacket: AJPVC10LY
 - Bib Overall: ABPVC10LY

Jacket and Bib Pants Features:



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



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



Reinforced lanyard opening.



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



Non-metallic quick release bib pant strap clips.



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



Jacket collar with self-stowing hood storage.



Ventilated jacket back.



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



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



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



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



Product Style	Color	Seam Methods	Sizes	Case Pack
AJPU10LY/ ABPU10LY/AJPVC10LY/ ABPVC10LY	Yellow 	Heat Sealed Seam	S-XXXL	1



High Visibility Clothing

ANSI/ISEA HIGH-VISIBILITY 107 VESTS

These Lakeland Hi-Viz Garments conform to 107-2010 American National Standard for High Visibility Apparel. Developed to mesh with the demanding requirements of the EN 471 Standard for Three garment classes in ANSI 107:

A. ANSI Class 1 "Typical", ANSI Class 2 "Under certain conditions" For occupational activities which:

Permit full and undivided attention to approaching traffic;
Ensure ample separation of the pedestrian worker from opposing vehicle traffic;
Create maximum viewing in non-complex back-grounds and where;
Vehicle and moving equipment speeds do not top 25 mph.

B. ANSI Class 2 "Typical", ANSI Class 1 or 3 "Based on certain conditions" For occupational activities where risk levels exceed those in scenario A:

Greater visibility is desired in bad weather;
Complex backgrounds are involved;
Workers' tasks are drawing attention away from ongoing vehicular traffic;
Vehicle/equipment speeds are greater than in Scenario A;
The job is closer to vehicular traffic.

C. ANSI Class 2 or 3 "Typical" based on certain conditions For occupational activities where risk levels exceed those of Scenario B, such as where:

Workers are dealing with higher vehicle speeds and/or shorter sight-distances;
Workers and drivers have great work loads, placing the worker in obvious danger;
The worker-wearer must be highly visible through all his/her motions at a minimum of 390 m (1280 feet), and must be recognized immediately as a human being.

HIGH VISIBILITY CLOTHING



Product Style	V-3A-C2
Grade	ANSI/SEA107-2010 Class 2
Features	Hook and loop front closure. Silver reflective trim. Solid polyester fabric.
Sizes	L-XL
Color	Yellow



Product Style	V-3A-C3G
Grade	ANSI/SEA107-2010 Class 2
Features	Solid polyester. Silver reflective trim on 4.5" Gro-grain. Hook and loop front closure.
Sizes	L
Color	Yellow/Orange



Cool Mesh Material

Product Style	V-AM-C2
Grade	ANSI/SEA107-2010 Class 2
Features	Hook and loop front closure. Silver reflective trim. Cool Mesh Material.
Sizes	L-XL
Color	Yellow



Product Style	V+AF-OSC2GBV-L-R
Grade	ANSI/SEA107-2010 Class 2 ANSI/SEA 207-2006
Features	Breakaway FR treated solid polyester vest. Open sided adjustable pro-grain, silver mic tab, inside pocket. 2" non-FR silver reflective rim. Front hook & loop closure.
Sizes	L
Color	Yellow

Product Style	C-HVRS01 (Coat) P-HVRS01 (Pants)
Grade	ANSI 107-2010 Class 3
Features	Polyester fabric with PU coating, waterproof and breathable. Two lower slash pockets, Two pass through slash pockets on pants. Removable hood with cord lock(Back ventilation). Adjustable pant legs.
Sizes	S-4XL
Color	Yellow



C-HVRS01 (Coat)



P-HVRS01 (Pant)

The Plus 2 Parka is two jackets in one! The inner fleece shell zips out to become another jacket all on it's own. The outer shell is a versatile jacket you'll reach for day after day. The wind resistant and water repellent nylon shell has plenty of features that take on the elements. The inner jacket is a valuable layering piece, whether it's worn alone or inside the outer shell parka.

Product Style	C-ANSIP-2
Grade	Exceeds ANSI/ISEA 107-2010, Class 3
Features	32" length with removable fleece liner jacket. Water resistant and water repellent. Snap off lined hood with brim. Hood fits over a hard hat. Ventilated mesh under back yoke. Mic tab on each shoulder.
Sizes	S-4XL
Color	Yellow





Eyes and Respiratory Protection



RESPIRATORY PROTECTION & EYES PROTECTION

Eyes Protection

Eyes protection is designed to help shield your eyes from certain impacts, debris, dust, splashes, and other potential hazards that could present severe injury to the eyes, including potential blindness.

SAFETY SPECTACLES

Firstly, temples and nose pads need to be chosen for improving fit and comfort, and even there are other options also available to meet specific needs, such as metal components. Once the style is chosen, the next consideration should be the lens technology for the task at hand, which depending on the work environment and lighting conditions.

GOGGLES

With goggles, the type of venting required for the work environment is the most critical consideration. Direct vented goggles have straight-line perforations that allow direct airflow from the work environment. Indirect vented goggles can be used when there is liquid splash risk.

Lens Performance and Tint Specifications

To better help you select the lens and tint that best fits your work conditions or application use, please see the chart below, which outlines the approximate performance characteristics of the numerous lens tint options, as well as application and performance benefits:

Lens Style	Application/Benefit
Amber	Blocks blue light for applications where increased visual contrast is needed. Inspection/Quality Control, haze and fog.
Blue Flash Mirror	Great general purpose sun lens that reduces sun glare and intense sunlight for outdoor applications.
Brown	Great general purpose sun lens with 'blue blocking' properties to reduce outdoor haze and increase contrast.
Clear	General purpose impact protection for indoor and outdoor use.
Gold Mirror	Excellent for intense outdoor sun glare reduction with 'blue blocking' properties to reduce outdoor haze and increase contrast.
Grey	General purpose sun lens that reduces sun glare and intense sunlight for outdoor applications.
Light Brown	Modest sun glare reduction with some 'blue blocking' properties to reduce outdoor haze and increase contrast.

Respiratory Protection

Breathing Hazards

Particulates: Can be created from a solid or a liquid. Solid particles are produced by operations such as grinding, crushing, drilling, blasting, sanding and milling. Spraying operations, planting operations, mixing and cleaning operations create liquid particles.

Fumes: Created when solid materials vaporize under high heat. Fumes come from operations such as welding, smelting and pouring of molten metal.

Gases: Substances similar to air in their ability to diffuse or spread freely throughout a container or area. Examples include oxygen, carbon monoxide, carbon dioxide, nitrogen and helium.

Vapors: Formed when a solid or liquid evaporates. Common vapors are gasoline, paint thinners and degreaser solvents.

OSHA standard, Filter Classes

Minimum Filter Efficiency	≥95%	≥99%	≥99.97%
N	N95	N99	N100
R	R95	R99	R100
P	P95	P99	P100

Filter Selections

N: Not resistant to Oil Mist

R: Resistant to Oil Mist, with use restricted to one 8-hour shift

P: Oil-resistant, with no time limitation

Europe standard (oil and non-oil based particles)

Filter Classes	FFP1	FFP2	FFP3
Minimum Filter Efficiency	≥80%	≥94%	≥99%

RESPIRATORY PROTECTION

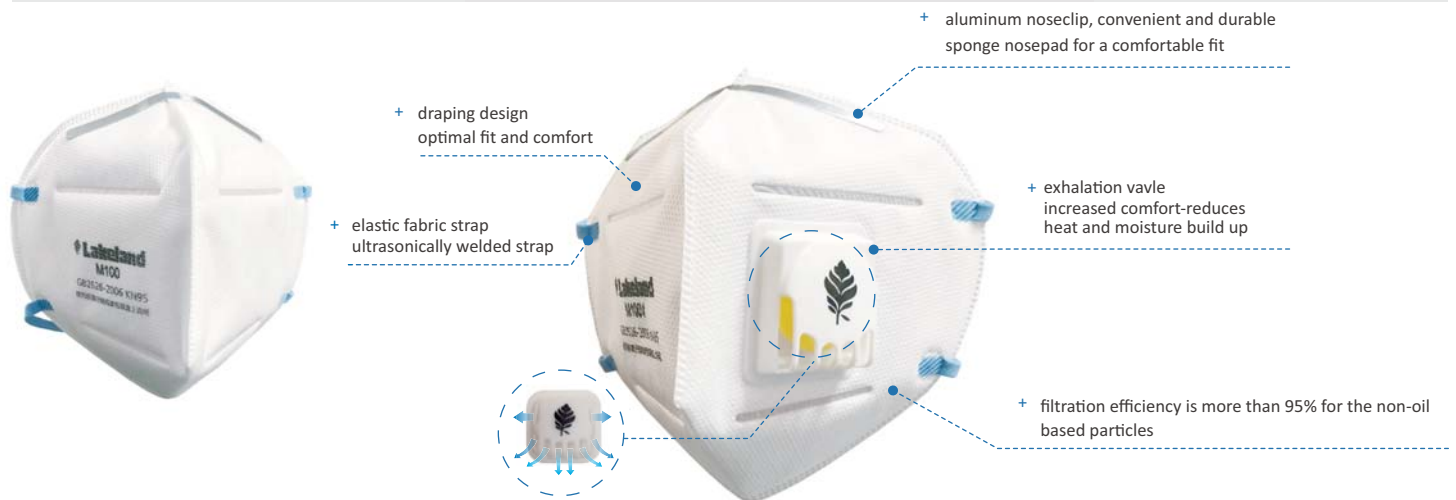
M100 / M100V Particulate Respirator

(Folding • Earloop/Head-strap)

China GB 2626-2006 KN95



KN95

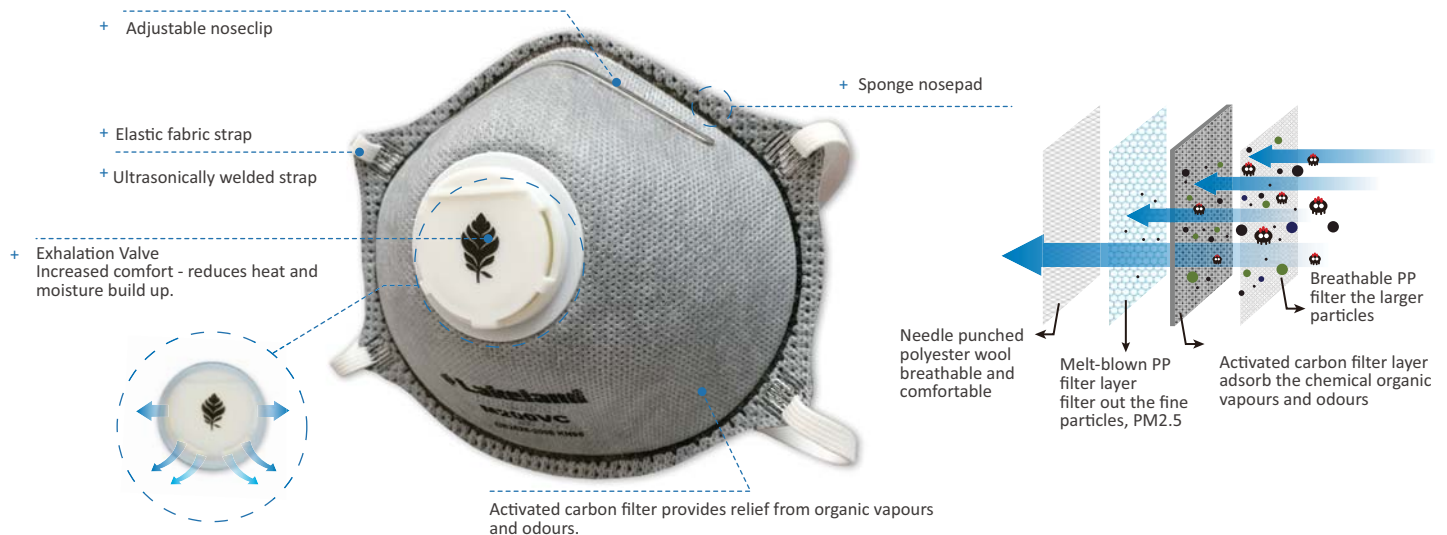


Product Code	Description	Case Pack
M100	Folding, Earloop/Head-strap	50 pcs/box 12 boxes/case
M100V	Folding, Earloop/Head-strap, Valve	20 pcs/box 12 boxes/case

M200VC Particulate Respirator

(Head-strap • Valve • Activated Carbon)

China GB 2626-2006 KN95



Product Code	Description	Case Pack
M200VC	Head-strap, Valve, Activated Carbon	15 pcs/box 12 boxes/case

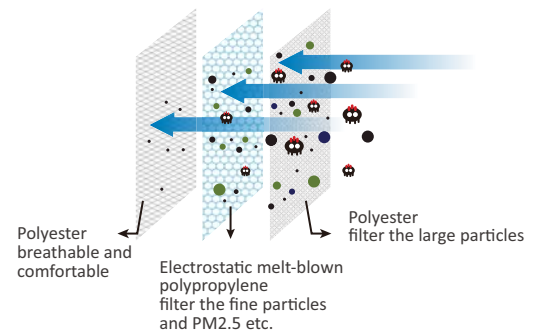
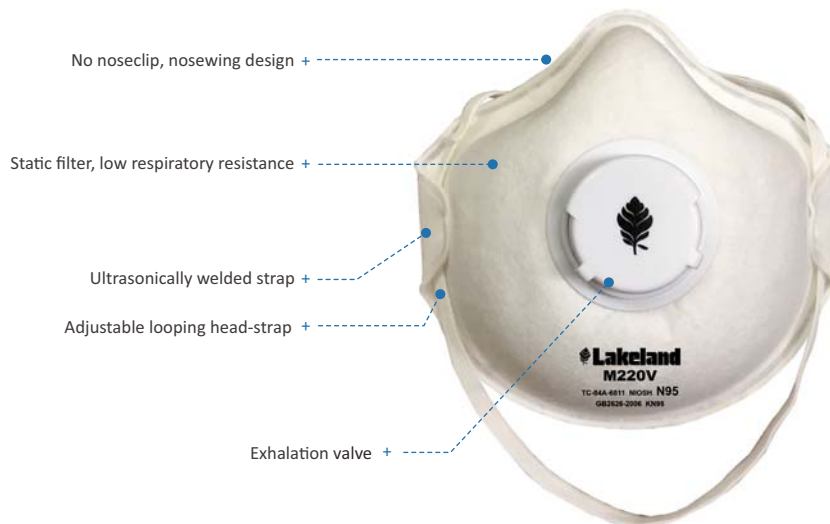
RESPIRATORY PROTECTION

M200V Particulate Respirator

(Head-strap • Valve)

US NIOSH N95

CHINA GB2626-2006 KN95

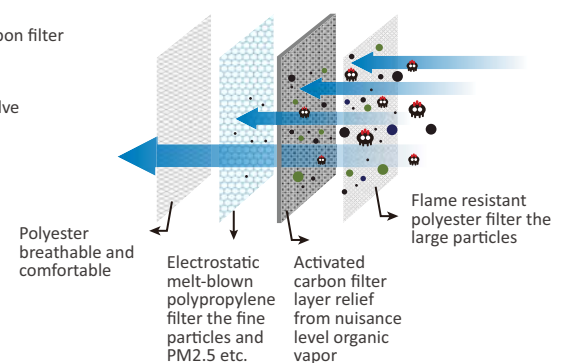
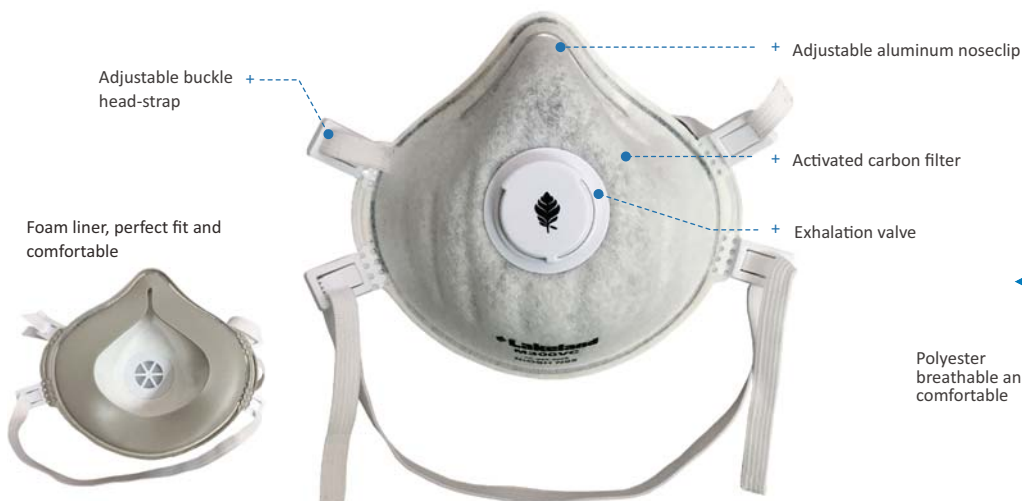
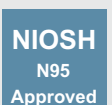


Product Code	Description	Case Pack
M200V	Head-strap, Valve	10pcs/box 12boxes/case

M300VC Particulate Respirator

(Head-strap • Valve • Activated Carbon)

US NIOSH N95



Product Code	Description	Case Pack
M300VC	Head-strap, Valve, Activated Carbon	10pcs/box 12boxes/case

EYE PROTECTION

G1580 Safety Goggle

Lens Color: Clear • **Frame Color:** Smoke Grey

- Impact and splash resistant molded lens, Flexible PVC frame;
- Arc panoramic view, Anti-fog and anti-scratch coating;
- Asian face design;
- Angle adjustable headband connector, Indirect ventilation hole;
- Suitable for wearing glasses and wear a half mask at the same time.



ANSI Z87+, CE EN 166, GB14866



Product Code	Description	Case Pack
G1580	Smoke Grey Frame, Clear Lens, Anti-Fog, Indirect Ventilation Hole.	10pcs/box, 9boxes/case

G1510 / G1510AF Safety Goggle

Lens Color: Clear • **Frame Color:** Light Blue

- Impact and splash resistant molded lens;
- Anti-cratch, UV protection;
- Asian face design, light weight and comfortable;
- 4 ventilation slots protecting against fog;
- Adjustable headband connector;
- Fits over prescription eyewear with ease;
- G1510(AF) is the anti-fog style.



ANSI Z87+, GB14866



G1510



G1510(AF)

Product Code	Description	Case Pack
G1510/G1510AF	Light Blue Frame, Clear Lens, Four Indirect Ventilation Slots.	12 pcs/box, 9 boxes/case

EYE PROTECTION

G1100 Safety Spectacles

Lens Color: Clear • **Frame Color:** Blue

- Increase the flank protection wide field of vision
- Adjustable length
- 99.9% UV protection
- Soft nose bridge
- Anti-fog and anti-scratch coating



ANSI Z87+, GB14866



Product Code	Description	Case Pack
G1100	Lightweight and comfortable, asian face design, suitable for a long time to wear	12pcs/box, 25boxes/case

G1200 Safety Spectacles

Lens Color: Grey • **Frame Color:** Grey

- Orange rubber inserts on the temples
- Increase the flank protection wide field of vision
- Integrated design for lens and frame
- 99.9% UV protection
- Soft nose bridge
- Anti-fog and anti-scratch coating



ANSI Z87+, GB14866



Product Code	Description	Case Pack
G1200	Lightweight and comfortable, asian face design	12pcs/box, 25boxes/case



Hand Protection



STANDARDS OF PROTECTIVE GLOVES



Please read instruction for use.

EN 388 : 2016 - Mechanical Risks

EN ISO 374-5 : 2016 - Micro-Organisms



where

a = resistance to abrasion (Min. 0 ; Max. 4)
b = resistance to blade cut (Min. 0 ; Max. 5)
c = resistance to tear (Min. 0 ; Max. 4)
d = resistance to puncture (Min. 0 ; Max. 4)
e = Cut ISO 13997:1999

abcde



Number refers to as acceptable quality level (AQL)

EN ISO 374-1:2016 - Protective Gloves Against Dangerous Chemicals



where

AJKLOPT

Table 1 - List of test chemicals

A : Methanol	G : Diethylamine	M : Nitric acid 65%
B : Acetone	H : Tetrahydrofurane	N : Acetic acid 65%
C : Acetonitrile	I : Ethyl acetate	O : Ammonium hydroxide 25%
D : Dichloromethane	J : n-Heptane	P : Hydrogen peroxide 30%
E : Carbon disulphide	K : Sodium hydroxide 40%	S : Hydrofluoric acid 40%
F : Toluene	L : Sulphuric acid 96%	T : Formaldehyde 37%

Performance Level	Breakthrough Time, Minutes
0	≤ 10
1	> 10
2	> 30
3	> 60
4	> 120
5	> 240
6	> 480

Note:

Type A : The permeation performance shall be at least level 2 against a minimum of six test chemicals in Table 1.
Type B : The permeation performance shall be at least level 2 against a minimum of three test chemicals in Table 1.
Type C : The permeation performance shall be at least level 1 against a minimum of one test chemical in Table 1.

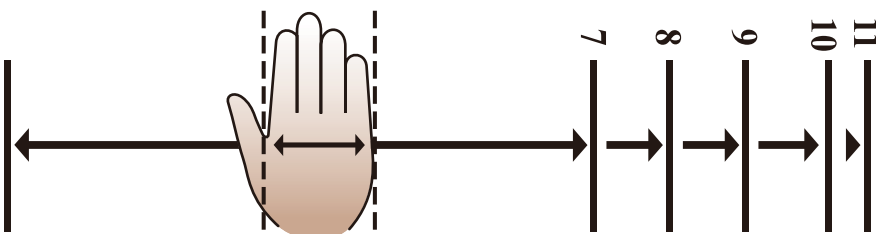
EN374-4: 2013 - Resistance to degradation by chemicals

Note for Observation (EN 374-4:2013)

- | | |
|----------------------|------------------------------------|
| 1. No Change | 4. Severe Swelling |
| 2. Slight Swelling | 5. Severe Swelling & Colour Change |
| 3. Moderate Swelling | |



Suitable for food contact
* Further information can be obtained from
Lakeland Industries, Inc.



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

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

NITROSOL™ NITRILE



EN15F: 4,1,0,1,X
EN19F: 4,1,0,2,X
EN22L: 4,1,0,2,X
CN15F: 3,1,0,1,X

EN ISO374-1:2016



AJKLOT

EN ISO374-5:2016



Raised Lozenge Grain



Flocklined

FEATURES

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

KEY APPLICATIONS

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

Product Code	Description	Length	Sizes	Case Pack
EN15F	15 Mil, Flocklined, Raised Lozenge Grain	13"(33cm)	8-11	144 pairs/carton
CN15F	15 Mil, Flocklined, Raised Lozenge Grain	13"(33cm)	8-10	144pairs/carton
EN19F	19 Mil, Flocklined, Raised Lozenge Grain	13"(33cm)	8-11	144 pairs/carton
EN22L	22 Mil, Unlined, Raised Lozenge Grain	17.7"(45cm)	8-10	36 pairs/carton

NATRASOL™ NATURAL RUBBER



2,0,1,0,X

EN ISO374-1:2016



KLM

EN ISO374-5:2016



Raised Zig Zag Grain



Flocklined

FEATURES

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

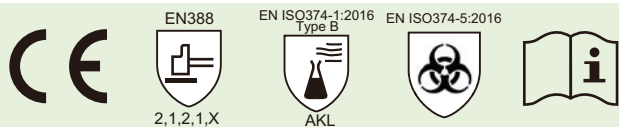
KEY APPLICATIONS

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

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

NEOLASOL™ NEOPRENE NATURAL RUBBER

NEOSOL™ NEOPRENE



Raised Zig Zag Grain



Flocklined

FEATURES

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

KEY APPLICATIONS

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



Pebble finish on the palm and back of hand



Flocklined

FEATURES

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

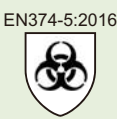
KEY APPLICATIONS

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

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

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

Natrasol® Natural Rubber Chemical Protective Gloves



FEATURES

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

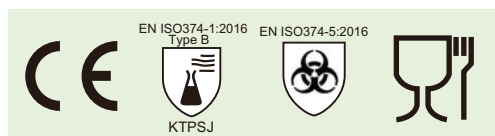
KEY APPLICATIONS

- Pharmaceutical Industry
- Chemical processing
- Mechanical Processing
- Metal handling
- Chemical and Petrol Industry

Product Code	Description	Length	Sizes	Case Pack
ER28F	28mil (0.70mm) thickness, 12" (30.5cm) length, Flocklined, Hexagonal Finish	12" (30.5cm)	8-11	72 Pairs/Case



DISPOSABLE GLOVES



8304PF Disposable Nitrile Gloves

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

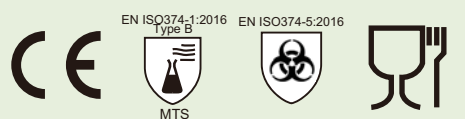
The glove that contains no latex is very comfortable and dexterity. It is much thicker and more durable than common disposable nitrile gloves. The grip performance is better because of textured surface.

FEATURES

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

KEY APPLICATIONS

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



8204PF Disposable Latex Gloves

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

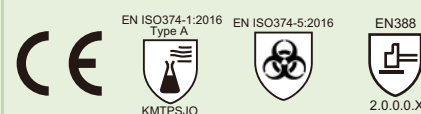
Comfortable, dexterity, Textured surface for good grip and good elasticity for all kinds of demands.

FEATURES

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

KEY APPLICATIONS

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



8308PF Disposable Nitrile Gloves

8308PF Disposable Nitrile Gloves
The gloves are Comfortable, dexterity, and chemical resistance; Much thicker and more durable than common disposable nitrile gloves; Reusable.

FEATURES

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

KEY APPLICATIONS

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

Product Code	Description	Sizes	Case Pack
8304PF	Disposable nitrile gloves, Powder free	S-XL	100pcs/box 10boxes/carton

Product Code	Description	Sizes	Case Pack
8204PF	Disposable latex gloves, Powder free	S-XL	100pcs/box 10boxes/carton

Product Code	Description	Sizes	Case Pack
8308PF	Disposable nitrile gloves, Powder free	S-XL	50pcs/box 10boxes/carton

SPIDERGRIP® MECHANIC PROTECTIVE GLOVES



Oil proof



Skid proof



Oil proof



7-1506



7-2506



7-1505

SpiderGrip™

Job fitted for applications where dexterity, flexibility and comfort are desired!

SpiderGrip gloves will make slips a thing of the past! SpiderGrip crinkle dip latex gloves have a textured palm to provide an excellent grip. The palm of the glove is liquid repellent, while the back provides excellent breathability to keep hands cool while on the job.

FEATURES

- Seamless design.
- Puncture resistant.
- Ergonomic fit.
- Long wearing.

KEY APPLICATIONS

- Light to medium fabrication.
- Parts handling.
- General warehousing.
- Maintenance.
- Corrugated manufacturing.
- General purpose handling where light liquids or oils are present.



7-3101

SpiderGrip™ 7-3101

When Dexterity Matters!

For the handling of those small parts nothing beats a Polyurethane coated polyester knit liner glove.

FEATURES

- Non-linting polyester seamless liner.
- Ergonomic fit.
- Superior tactile feel and touch.
- Comfort plus.

KEY APPLICATIONS

- Intricate parts assembly.
- Inspection.
- Electronics.
- Automotive.
- Material handling.
- Light fabrication.

Product Code	Description	Sizes	Case Pack
7-1505	Polyester cotton latex dipped gloves	L	120pairs/carton
7-1506	Polyester cotton latex dipped gloves	S-XL	120 pairs/carton
7-2506	Lightweight polyester latex dipped gloves	S-XL	144 pairs/carton

Product Code	Description	Sizes	Case Pack
7-3101	P/U white polyester polyurethane dipped gloves	S-XL	144 pairs/carton

SPIDERGRIP® CUT RESISTANT GLOVES



Cut resistant



Skid proof



2.5.4.X



SpiderGrip® 22-1601

FEATURES

- Superfine stainless steel wire and 100% aramid, which has excellent cut-resistant ability;
- PVC dots on palm, which make the gloves skid proof.
- Soft, comfortable, good breathability and long using life.

KEY APPLICATIONS

- Metal Handling
- Automotive Industry
- Assembly
- Manufacturing

Product Code	Description	Sizes	Case Pack
22-1601	PVC dots on palm, excellent cut-resistant ability	S-XL	1 pair/bag, 120 pairs/carton



Cut resistant



Oil proof



Skid proof



3.5.4.3



SpiderGrip® 22-1608

FEATURES

- Accord with anti-cutting level 5 of EN388
- Latex finish on the palm of gloves, which make the gloves oil and skid proof.
- Accord with contact heat level 2 of EN407. Be able to resist 250 °C contact heat.

KEY APPLICATIONS

- Automotive industry
- Glass Manufacturing
- Metal and Mechanic Handling
- Logistics
- Emergency Rescue

Product Code	Description	Sizes	Case Pack
22-1608	Anti-cutting level 5, Latex finish on the palm of gloves.	S-XL	12 pairs/bag 120 pairs/carton

SPIDERGRIP® CUT RESISTANT GLOVES



Cut resistant



Oil proof



Skid proof



4.5.4.3



FEATURES

- 100% HPPE fiber knit. Excellent cut-resistance performance. Meeting the requirements of EN388.
- Soft, comfortable and breathable.

KEY APPLICATIONS

- Plastic processing.
- Leather processing.
- Glass products industry.
- Metal processing.

Product Code	Description	Sizes	Case Pack
96-5205	13 gauge. 100% HPPE fiber knit. Polyurethane dipped gloves	S-XL	240 pairs/carton

ENHAND-CR® CUT RESISTANT GLOVES



In this magnified view, the positively charged surface of MicroGard® attracts the negative charged bacteria. Due to the electrical attraction, the bacteria is drawn into the molecular spikes which puncture the bacteria membrane, killing it.



Enhand-CR, Your FIRST line of defense!

- Cut Resistance:
Highest level on ASTM F1790 standard.
- Dexterity:
Excellent flexibility, feel and dexterity.
- Launderable:
Withstands over 40 washings.
- Cost:
More economical than lesser cut resistant gloves without antimicrobial features.
- Other design features:
Improve areas of premature wear through a patented design process.



FEATURES		KEY APPLICATIONS	
<ul style="list-style-type: none"> • Passes ASTM E2149. • Passes AATCC Test Method 100. • Microbes Are Killed Instantly. • Withstands Up to 40 Washings. • Ionically bonds to fibers to last the life of every fiber in the product. 		<ul style="list-style-type: none"> • For all food service industries, poultry, chicken or beef processing. • Passes ASTM E2149. • Passes AATCC Test Method 100. • Can be washed with bleach. 	
Product Code	Description	Sizes	Case Pack
96-1754	Blue Enhand-CR Glove	S-L	12pcs/bag

SHURRITE® CUT RESISTANT GLOVES

Twaron®

EN388

1.4.4.X



Advantages of Twaron® in protective gloves

Twaron® Fiber

- Teijin promotes a finer 1.5 denier Twaron® fiber for use in protective gloves compared to 2.25 denier fiber commonly used in the market. The benefit for the end user is a longer lasting, more comfortable product with maximum protective properties.
- Greater life cycle compared to competitive products.
- Due to its patented manufacturing process Twaron® is showing less change of color after UV exposure.
- Good Thermal characteristics of Twaron®. Does not burn. Does not melt or drip. Has low heat shrinkage. Retains dimensional stability at high temperatures. Release little smoke under extreme conditions

FEATURES

- Made from 100% Twaron® fiber;
- Outstanding mechanical protective feature;
- Soft, breathable and comfortable;
- Good dexterity.

KEY APPLICATIONS

- Automotive
- Metal Handling
- Assembly
- Glass Industry



Product Code	Description	Sizes	Case Pack
21-849C	Made from 100% Twaron® fiber	S, M, L	12 pairs / bag 120 pairs/carton

SHURRITE® CUT RESISTANT GLOVES

EN388

1.5.4.X

EN388

2.5.4.X



Reinforcement between the thumb and the index finger.

ShurRite®
21-843C
M
由 100% Kevlar® 纤维制成
Lakeland INDUSTRIES, INC.

21-843C



Anti-cutting Level 5



- Modern Protective Armor!
- Lakeland ShurRite® safety gloves and sleeves made with DuPont® 100% Kevlar® aramid fiber provide excellent cut resistance for hand and arm protection. ShurRite® offers outstanding cut resistance combined with intermittent heat resistance without affecting their wearers manual dexterity. These tough gloves and sleeves will outlast cotton, leather and coated gloves many times over. They greatly reduce potential injuries to workers' hands and contribute to reducing accident claims and insurance costs. Available in various grip-enhancing coatings and patterns.
- And, where additional protection from heat is required, ShurRite® Kevlar® Terry gloves are the answer. The terry loop construction provides a cushion of air that insulates against high temperature extremes, while Kevlar® adds the cut/slash protection.

FEATURES

- Cut Resistant.
- Heat Resistant.
- Chemical Resistant (organic solvents; diluted acids).
- Lightweight.
- Excellent dexterity and flexibility.
- Breathable.
- Washable.

KEY APPLICATIONS

- Metal handling.
- Automotive.
- Aerospace.
- Assembly.
- Lumber and paper.
- Office furniture manufacturing.
- Heating and air conditioning.
- Manufacturing.
- Wire and cable industries.
- Glass industry.

FEATURES

- Accord with anti-cutting level 5 of EN388.
- Nontoxic material, comfortable and dexterity.
- Long using life.

KEY APPLICATIONS

- Metal handling.
- Automotive.
- Assembly.
- Lumber and paper.
- Office furniture manufacturing.
- Heating and air conditioning.
- Manufacturing.
- Glass industry.

Sizes:

Distinguish the size by different color on wrist.



S: Yellow



M: Red



L: Brown

Product Code	Description	Sizes	Case Pack
21-843C	7 gauge 100% Kevlar® knit gloves	M-L	1 pair / bag 120 pairs/carton
41822THVC	100% Kevlar®, 2 ply sleeve, 3" width	18"	1 piece / bag 200 pcs/carton

Product Code	Description	Sizes	Case Pack
21-845C	7 gauge, 100% Aramid and superfine stainless steel wire	S-L	12 pairs / bag 120 pairs/carton

Limited Use Clothing / Chemical Protective Clothing



Heat Protective Clothing



Hands Protection / Eyes Protection / Respiratory Protection

