Lakeland®

The Guide

to Type 5 & 6 Protective Coverall Selection

A guide to the types and selection of common Type 5 & 6 protective coveralls

Why choose Lakeland?

Lakeland Protective Clothing

Type 5 & 6 Selection Guide

This guide provides detailed descriptions and technical information for Lakeland's range of garments for protection against CE Types 5 (hazardous dust) & 6 (light liquid spray) applications.

This booklet also provides an easy to follow guide to selection of the most appropriate garment for your application. Given that all garments in the market are based on one of three essential fabric types, this guide covers the important factors for consideration; protection, durability, comfort and design. It shows that Lakeland offers the best overall options in all four cases and that paying a higher price for a brand name does not always mean you have the best product.

Selection of the most appropriate garment is important both in ensuring that workers are provided with the best protection, but also that you don't pay for more protection than you need.

Lakeland was the original manufacturer of non-woven-based disposable protective coveralls and it remains the best.

Lakeland delivers the best, most innovative Protective Clothing products and choices in the world.

Broad range of products and fabrics

The wide choice of fabrics and styles offered means users can target selected protection more specifically to their application - which means better protection, greater comfort and lower cost. Lakeland offers the right tool for the job… *because if all you have is a hammer… everything looks like a nail!*

Expertise from experience

Lakeland was the original manufacturer of non-woven based limited life clothing and remains the best. Our expertise is derived from over forty years experience of the design and manufacture of protective clothing.

World-wide presence and growth

Lakeland International is growing rapidly, with production and sales in over 40 countries. So we can bring you the best in fabrics and innovations the world has to offer.

Know the maker - we manufacture our own products

Lakeland Protects People. It is our core business. Unlike many of our competitors we don't use contractors for our key products. We make our own - so we control production and quality.

We design the fabric, we make the garment, we inspect it and we ship it.

Let us help you Protect Your People.

Contents

Which garment to use?

The following pages 4 to 9 provide a guide to selection of the factors for consideration when selecting the best suit for the job. Selection of the most appropriate garment means more targeted protection and often greater comfort and lower cost.

1. Protection and fabric types
There are many Type 5 & 6 garment options on the market… but how many different fabrics are there?

2. CE Testing - Physical properties and comparisions
Fabric strength affects durability and protection. Standard CE tests measure different types of physical strength. What types of tests are available and how do fabrics compare?

3. CE Testing - Effectiveness of liquid protection
Liquid protection is vital for Type 6 garments. CE tests provide methods of measuring performance. How do the different fabrics compare?

4. Comfort and Breathability
Air permeability is the major factor in comfort… the higher the air permeability, the greater the comfort level for the wearer. How do the fabric types compare?

5. Design Features
Effective design influences protection, comfort and durability. The Lakeland 'Super-B' design incorporates a unique combination of three features making them the best available.

Type 5 & 6 Suit Selection Guide

1. Protection and fabric types

- Protection types
- Fabrics used for Type 5 & 6 garments

What is Type 5 & 6 protection?

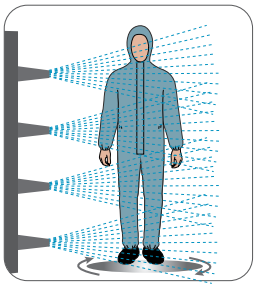
Defined by CE Standards

EN 13982	EN 13034
Type 5 Hazardous Dry Particles	**Type 6** Reduced Liquid (aerosol) Spray

Type tests help to understand these protection types:

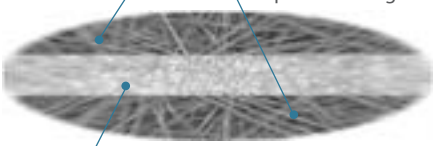
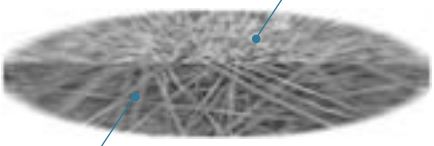
Type 5- Hazardous Dry Particles
- Spray cabin filled with dust
- Subject performs exercise on treadmill
- 3 particle counters INSIDE the suit
- Particle "Inward leakage" calculated
- Recorded as % of inward leakage (TIL)

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



There are 3 types of fabrics used to manufacture Type 5 & 6 garments.

All 3 fabrics are based on 'non-woven' fabrics = Extruded or blown fibres (usually polyethylene and/or polypropylene). Bonded into fabric using heat. Finished to achieve, repellency, absorbancy, anti-static properties etc.

Flashpun Polyethylene (FSPE)	Spunbond-Meltblown Spunbond (SMS/SMMS)	Microporous Film Laminate (MPFL)
1 layer Dense structure of fine, continuous polyethylene fibres. 	3 or more layers Spunbonded layers (thicker continuous fibres) provide strength  Meltblown layer (fine, discreet fibres) provides filtration	2 layers Microporous layer features inter-linked cavities forming complex 'wormholes' through the film.  Single layer of spunbonded polypropylene laminated to polyethylene.
100% polyethylene fibre	3 layers of polypropylene fibres	Outer layer: polyethylene film Inner layer: polypropylene fibre
Proprietary fabric from a single manufacture	SafeGard™ GP | SafeGard™ 76 SafeGard™ Diamant	MicroMax® | MicroMax® NS MicroMax® NS Cool Suit | MicroMax® TS

All Type 5 & 6 garments use one of these fabrics or similar variations. → **How do these fabrics compare?** → Physical tests required in CE standards provide an effective performance comparison

Note: All three fabrics have some level of porosity and are therefore not effective barriers to permeation of hazardous chemicals. More hazardous chemicals should be protected against using EN 14605 Type 3 & 4 chemical garments which are tested using a permeation test rather than the repellency test used for Type 6 garments. *See the Lakeland Guide to Chemical Suit Selection*

Type 5 & 6 Suit Selection Guide

2. CE Testing - Physical properties and comparisions

- Finished garment tests
- Fabric profile / physical tests

Finished Garment Tests

CE Type Tests
Type Tests for Types 1 to 6
- Type 5: Hazardous Dry Particles
- Type 6: Reduced (aerosol) Liquid Spray

(see page 4)

Seam Strength Test - EN ISO 13935-2

'to identify the strength of seams'

Fabric sample (5cm side) with seam is clamped between two grabs. Force to break the seam, measured in Newtons (N)

Results quoted in Classes 1 to 6 : 6 is highest.

FSPE	SafeGard™	MicroMax® NS	MicroMax®
3	3	3	3

Fabric profile / physical tests

Abrasion Resistance - EN 530 (Method 2)

'to identify resistance to abrasion or rubbing'

Fabric sample is abraded with a rotating disc. Measures number of 'cycles' to damage fabric.

Results quoted in Classes 1 to 6 : 6 is highest.

FSPE	SafeGard™	MicroMax® NS	MicroMax®
2	2	2	1

Puncture Resistance - EN 863

'to identify resistance to a point force'

Measure force in Newtons (N) to puncture the fabric.

Results quoted in Classes 1 to 6 : 6 is highest.

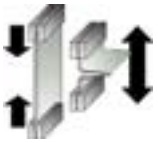
FSPE	SafeGard™	MicroMax® NS	MicroMax®
2	1	1	2

Flex Cracking Resistance - ISO 7854/B

'to identify ability to flex repeatedly without damage'

Fabric sample is clamped between two grabs. Repeatedly pulled, pushed together and apart. Measured in number of cycles to damage fabric.

Results quoted in Classes 1 to 6 : 6 is highest.



FSPE	SafeGard™	MicroMax® NS	MicroMax®
6	5	4	5

Trapezoidal Tear - ISO 9073-4

'to identify resistance to tearing once damaged'

Fabric sample with 'nick' in edge is pulled apart. Measures force to continue tear. Measured in machine and cross direction (md/cd)

Results quoted in Classes 1 to 6 : 6 is highest.

FSPE	SafeGard™	MicroMax® NS	MicroMax®
1	3	2	3

Tensile Strength - ISO 13934-1

'to identify basic pull strength of fabric'

Fabric sample is clamped between two grabs. Measures force in Newtons required to break fabric when pulled apart. Measured in machine and cross direction.

Results quoted in Classes 1 to 6 : 6 is highest.

FSPE	SafeGard™	MicroMax® NS	MicroMax®
1	2	1	1

Anti-Static Properties - EN1149-1

'to identify ability of fabric to allow a static charge to dissiptate and go to ground'

Surface resitivity of fabric measured between two electrodes on fabric surface. Requires a maximum surface resistance of 2.5 x 10^9 ohms (Ω).

Measured as PASS or FAIL.

FSPE	SafeGard™	MicroMax® NS	MicroMax®
PASS	PASS	PASS	PASS

Note: Some tests (trapezoidal tear and tensile strength) are measured in Machine (MD) and Cross Direction (CD or XD).

Why?: In fabric construction more fibres orient along the length of the fabric (MD) rather than across the width (CD). So MD tends to be stronger.

Summary:

Results highlighted in green indicate where Lakeland options are equal or superior to the non-Lakeland option.

In 7 of 8 tests Lakeland offer at least an equivalent option.

In 3 of 8 tests Lakeland offer the superior option.

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3. CE Testing - Effectiveness of liquid protection

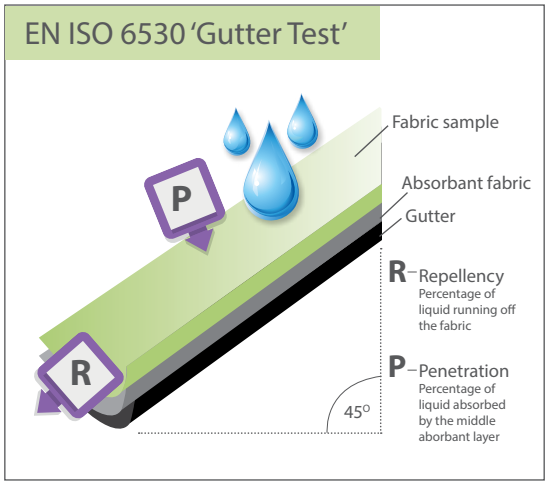
- Resistance to liquid penetration
- Resistance to liquid repellency
- Resistance to penetration by infectious agents

Resistance to liquid penetration and liquid repellency

EN ISO 6530

Testing to Type 6 includes a Penetration / Repellency test to measure resistance to liquid penetration. (also known as the 'gutter test')

EN ISO 6530 'Gutter Test'



EN 6530 Fabric penetration / Repellency Testing		FSPE	SafeGard™	MicroMax® NS	MicroMax®
Sulphuric Acid (30%)	Penetration	3	3	3	3
	Repellency	3	3	3	3
Sodium Hydroxide (10%)	Penetration	3	3	3	3
	Repellency	3	3	3	3
O-Xylene	Penetration	1	<1	2	2
	Repellency	1	<1	3	3
Butanol-1	Penetration	2	<1	3	3
	Repellency	1	<1	2	2

Results classified according to 3 classes : Class 3 is the highest.
The standard lists four chemicals for testing. Must obtain a minimum Class 3 on at least one chemical)

Of the four chemicals tested:

All fabrics achieve the same results (Class 3) for Sulphuric Acid and Sodium Hydroxide.

MicroMax® NS and **MicroMax®** achieve the superior results for O-Xylene and Butanol-1.

Resistance to penetration by infectious agents

EN 14126 - is the standard for protective clothing against infectious agents and biological hazards.

It is important for clothing worn by medical staff in projects like the Ebola relief effort in West Africa in 2014-15.

The test includes 4 tests against different types of contaminant.*

Note that the EN 14126 standard defines no requirements for garment construction, thus allowing garments with stitched seams to be certified. However, we would recommend that only garments with sealed seams are used for protection against biological and infectious hazards.

* NOTE: Some manufacturers suggest 5 tests. The first test listed in the standard (ISO 16603) is purely a preparation test for ISO 16604 which is used to indicate where the testing level should begin. Some claim a classification for 16603 but *there is no such classification in the standard.*

EN ISO 14126 Testing against infectious agent contamination and penetration		FSPE	SafeGard™	MicroMax® NS	MicroMax®
Protection against blood and body fluids	ISO 16604	<1	NT	6 (max is 6)	6
Protection against biologically contaminated aerosols	ISO 22611	1	NT	3 (max is 3)	3
Protection against dry microbial contact	ISO 22612	1	NT	3 (max is 3)	3
Protection against mechanical contact with substances containing contaminated liquids	EN 14126 (Annex A)	1	NT	6 (max is 6)	6

- In all four tests the Lakeland MicroMax® options achieve the maximum class.
- In 3 of the 4 tests, FSPE achieves only Class 1. In the first test (the most critical in applications such as Ebola protection) FSPE fails to reach Class 1 so is unclassified.
- SafeGard™ is untested as it is not recommended for this type of protection.

Both penetration, repellency and infectious agent testing prove superior liquid protection is offered by **Lakeland's microporous film MicroMax® options.** For applications where liquid protection is required and especially in the case of infectious agent protection, **MicroMax® is the best choice.**

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4. Comfort and Breathability

- Air permeability testing
- Application of common sense

Some manufacturers suggest Moisture Vapour Transmission Rate (MVTR) - the tendency of a fabric to allow moisture vapour to pass through - is equivalent to breathability and results in better comfort. However, MVTR has a very limited comfort effect for a short time and effectiveness will vary in differing conditions. ***MVTR is not breathability and does not result in a comfortable garment.***	The critical factor affecting comfort is air permeability.	No CE test for air-permeability of disposable fabrics exists. However, independent testing has been conducted. Air permeability is measured in "cubic feet per minute" - or "cfm" - the volume of air passing through the fabric.

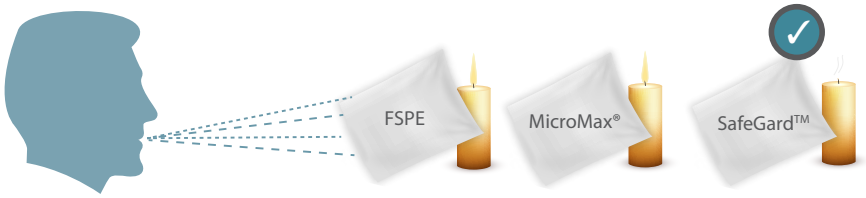
Air Permeability	FSPE	SafeGard™	MicroMax® NS	MicroMax®	Cotton t-shirt	
Cubic feet per minute (cfm)	~3.3	40	<0.5	<0.5	180	The breathability of both FSPE and microporous film is similar and close to zero. SafeGard™ has a much greater breathability and is the superior choice where comfort is a key requirement.
Testing indicates FSPE fabric has a breathability of approximately 3.3 cfm, higher than that of MicroMax®. However, SafeGard™ has cfm of 40 - more than 10 times that of FSPE, and by comparison a standard cotton T-shirt has a cfm of 180.						

Application of common sense

Other simple tests can indicate the relative air permeability of the three types of fabric.

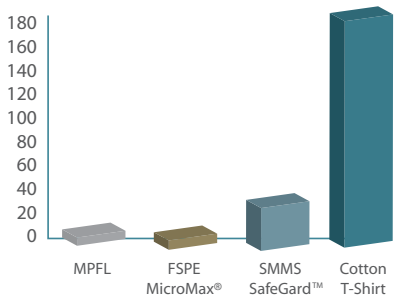
Simple Breath Test
Can you blow through the fabric?

Simple Candle Test
Can you blow a candle out through the fabric?



Summary

Fabric Air Permeability - cfm



- MPFL and FSPE have almost no air permeability.
- SMMS (SafeGard™) has more than ten times air permeability.

For comfort, SafeGard™ is the superior choice.

Lakeland Cool Suits®

Lakeland Cool Suits® combine the protective properties of MicroMax® and ChemMax® fabrics with the breathability of SafeGard™ fabrics.

Cool Suits® are protective coveralls in Type 4, 5 and 6 versions featuring a SafeGard™ breathable rear panel.

Where both protection and comfort are required, Cool Suits® may be the best option.

Design Features

5. Design Features

How can garment design and features make the garment more effective?

What features are standard on Lakeland Type 5 & 6 garments?

The design and features of a garment can affect protection, comfort and durability.

Pattern Design	An ergonomically styled garment pattern affects comfort and durability: - low cost garments often use a very basic pattern. This results in an uncomfortable garment that is less effective at protecting and soon splits - often first at the crotch.	A low cost garment which needs to be replaced more often does not represent a saving!
Garment Size	Effective sizing and styling of a garment has a major effect on protection, comfort and durability. Low cost garments often are sized smaller in order to use less fabric and save cost.	A poorly sized garment is often uncomfortable and will not last - it may be lower cost but is not a real saving.
Garment Features	Well designed features can enhance the comfort and durability of a garment.	Simple garments may be cheaper but are also less effective and less durable.

Lakeland garments feature several key design elements that make them superior:

Super-B Style: **the combination of 3 key design elements (three-piece hood, crotch gusset and inset sleeves) make a uniquely ergonomic style**

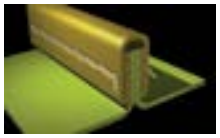
1. Three-Piece Hood
Lakeland garments feature a hood made of three pieces - including a uniquely shaped centre piece. This creates a more 3-dimensional hood which fits the head more effectively and is more comfortable.

2. Chest Label
Legally required CE information is included on the chest label so all certification is clearly visible even when the garment is in use.

NEW
All chest labels will feature both an internationally registered barcode and a QR code link to a web page where the EC Declaration of Conformity can be downloaded, as required by the new PPE Regulation.

3. Crotch Gusset
The crotch faces great stress and is always the weakest point of a garment - especially where in cheaper garments four seams meet at one point.
Lakeland coveralls feature a two-piece crotch gusset which creates a better fitting 3-D shape and spreads the stress. This enhances comfort and reduces the chance of splitting at the crotch.

4. Seams
Premium Lakeland garments such as SafeGard™ 76, MicroMax® and the MicroMax® NS Cool Suit have stitched and bound seams featuring an additional strip of fabric wrapped around the seam, improving protection, strength and durability.



5. Inset Sleeves
Most European garments use a bat-wing sleeve. This uses less fabric and is cheaper. However, Lakeland garments use an inset sleeve design in which the sleeve and torso follows the shape of the body.
This means the garment fits better and reduces both stress on the crotch and the tendency to pull the sleeves back when reaching up. It also removes the need for potentially hazardous thumb loops so often required on bat-wing sleeve garments.

6. General Sizing
Lakeland garments are generously sized to allow freedom of movement and more circulation of air to enhance comfort.

Lakeland garments include a unique combination of key design elements and superior features that make a Lakeland garment one of the best designed available.

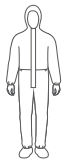
Type 5 & 6 Suit Selection Guide

Summary and Conclusions

Factors affecting **Type 5 & 6** Garments

- Liquid Protection Tests
- Physical Properties
- Comfort - Air Permeability
- Garment design and features

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



Flashspun Polyethylene (FSPE)

SMS/SMMS - 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.

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 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 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, the Lakeland option offers the superior choice compared to the alternative 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.**
Design Features	Effective and ergonomic garment design and features can have a positive effect on protection, durability and comfort.	Lakeland Type 5 & 6 options feature the unique 'Super-B' styling and superior features.

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

Protection | Physical Properties | Comfort and Breathability

For all three factors - Lakeland garments provide the best choice ....

SafeGard™ GP


Serged (stitched) overlocked seams

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5

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

- 45gsm SMMS fabric with high breathability and superior level of comfort.
- Air permeability over 10 times that of flash-spun polyethylene or microporous film laminates.
- Air permeability negates generation of the bellows effect which on low-breathable fabrics encourage penetration of particles through seams and closures.
- Double-sided tape to zipper cover to allow safe and secure seal over the zip.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to mazimise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$	Pass* (<2.5 x $10^9\Omega$
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

Infectious Agent / Biological Hazard Protection

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

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

SafeGard™ GP Styles

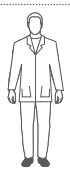
Style code 528
Coverall with elasticated hood, cuffs, waist & ankles.
Sizes: SM - 3X

Style code L528
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.
Sizes: SM - 3X

Style code 514
Coverall with elasticated hood, cuffs, waist and attached socks.
Sizes: SM - 3X

Style code L514
Coverall with elasticated hood, cuffs with thumb loops, waist and attached socks.
Sizes: SM - 3X

Style code 101
Lab coat with two hip pockets. 4 stud fastening.
Size: MD - XL



Style code 101Z
Lab coat with two hip pockets. Zip fastening.
Size: MD - XL

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

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

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

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

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

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

Available in: White ☐ Blue ■

Not all styles are available from European stock in this fabric. Please contact our sales office for information on stock items.

SafeGard™ 76

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5

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

- Constructed with 45gsm 4-layer SMMS fabric – double layer of melt-blown fibre ("MM") to enhance hazardous dust protection whilst maintaining high comfort level.
- Seams are exterior stitched and bound with coated fabric to improve strength and particle filtration.
- Fabric air-permeability is over 10 times greater than flash-spun polyethylene and microporous film laminated resulting in much higher comfort level for users.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to mazimise freedom of movement and negate the need for thumbloops.
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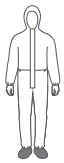
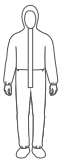
SafeGard™ 76 Styles

SUPER B-STYLE

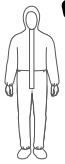


Style code 428
Coverall with elasticated hood, cuffs, waist & ankles.
Sizes: SM - 3X

Style code L428
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.
Sizes: SM - 3X



Style code 414
Coverall with elasticated hood, cuffs, waist and attached socks.
Sizes: SM - 3X



Style code L414
Coverall with elasticated hood, cuffs with thumb loops, waist and attached socks.
Sizes: SM - 3X

Available in: White ☐ Blue ■

Not all styles are available from European stock in this fabric.
Please contact our sales office for information on stock items.

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

Infectious Agent / Biological Hazard Protection

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

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

SafeGard™ 76 Diamant

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5

SafeGard™ 76 Diamant Styles

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

Sizes: SM - 3X

Available in: White with red seams

Not all styles are available from European stock in this fabric. Please contact our sales office for information on stock items.

SafeGard™ 76 version with SMMS fabric and red bound seams. Specifically developed to meet the French Asbestos Industry regulations.

- Constructed with 45gsm 4-layer SMMS fabric - double layer of melt-blown fibre ("MM") to enhance hazardous dust protection whilst maintaining high comfort level.
- Seams are exterior stitched and bound with coated fabric to improve strength and particle filtration.
- Fabric air-permeability is over 10 times greater than flash-spun polyethylene and microporous film laminated resulting in much higher comfort level for users.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to mazimise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$	Pass* (<2.5 x $10^9\Omega$
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

Infectious Agent / Biological Hazard Protection

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

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

MicroMax®

TYPE 5-B | TYPE 6-B | EN 1073-2 | EN 1149-5 | EN 14126

* fabric only

Tougher fabric for more demanding applications

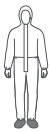
Standard microporous film laminate features a single microporous PE film laminated to a spunbond PP layer.

MicroMax® features an additional scrim between the layers to add strength and durability, making a tougher product than other fabrics of this type for more demanding applications.

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

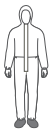
- Addition of unique scrim results in highest tear strength in its class – tougher and more durable for more demanding environments.
- Stitched and bound exterior seams to enhance strength and particle filtration at seams.
- Soft and flexible high quality microporous film laminate offers excellent combination of protection and comfort.
- High moisture vapour transmission rate allows escape of vapour to maintain comfort.
- Fabric passes all tests in EN 14126 infectious agent standard at the highest class. Certified to Type 5-b and Type 6-b.
- Non-linting film surface combined with taped seams makes MicroMax® ideal for many clean room applications.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to mazimise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

MicroMax® Styles



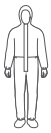
Style code 428
Coverall with elasticated hood, cuffs, waist & ankles.

Sizes: SM - 3X



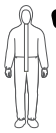
Style code L428
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.

Sizes: SM - 3X



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

Sizes: SM - 3X



SUPER B-STYLE by Lakeland

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

Sizes: SM - 3X

Available in: White

Not all styles are available from European stock in this fabric. Please contact our sales office for information on stock items.

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

Infectious Agent / Biological Hazard Protection

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

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

MicroMax® NS

Serged (stitched) overlocked seams

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5 | EN 14126

MicroMax® NS NUCLEAR
A version of MicroMax® NS developed for the Nuclear Industry. Features a clear window in the chest for viewing of a docimeter or other monitoring device.
Fully tested and approved to Nuclear Industry Standard EN 1073 as well as Type 5 & 6 and EN 1149.

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

- Soft and flexible high quality microporous film laminate offers excellent combination of protection and comfort.
- High moisture vapour transmission rate allows escape of vapour to maintain comfort.
- Double-sided tape to zipper cover to allow safe and secure seal over the zip.
- Fabric passes all tests in EN 14126 infectious agent standard at the highest class. Certified to Type 5-b and Type 6-b.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to mazimise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

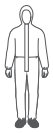
Infectious Agent / Biological Hazard Protection

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

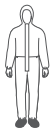
Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO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

MicroMax® NS Styles

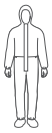
SUPER B-STYLE by Lakeland



Style code 428
Coverall with elasticated hood, cuffs, waist & ankles.
Sizes: SM - 3X



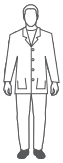
Style code L428
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.
Sizes: SM - 3X



Style code 414
Coverall with elasticated hood, cuffs, waist and attached socks.
Sizes: SM - 3X

Style code L414
Coverall with elasticated hood, cuffs with thumb loops, waist, ankles and attached socks.
Sizes: SM - 3X

Style code 412
Coverall with collar, elasticated cuffs, thumb loops, waist & ankles.
Size: MD - XL



Style code 101
Lab coat with two hip pockets. 4 stud fastening.
Size: MD - XL

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

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

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

Available in: White ☐ Orange ■

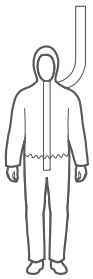
Not all styles are available from European stock in this fabric. Please contact our sales office for information on stock items.

MicroMax® NS TRINE

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

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

MicroMax® NS TRINE Style



Style Code: EMN428WH
Coverall with elasticated hood, waist, wrists and ankles. Rear sleeve for fall arrest harness lanyard.

Sizes: SM - 3X

Available in: White

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

www.lakeland.com/europe/blog/cat/videos/post/mmnstrine/

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

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

Infectious Agent / Biological Hazard Protection

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

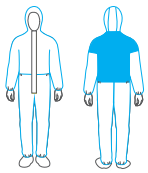
Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO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

MicroMax® NS Cool Suit

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

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

MicroMax® NS Cool Suit Style



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

Sizes: SM - 3X

Available in: White with blue seams and blue rear panel

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$	Pass* (<2.5 x $10^9\Omega$
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

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

Infectious Agent / Biological Hazard Protection

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

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

MicroMax® TS

TYPE 4-B | TYPE 5-B | TYPE 6-B | EN 1073-2 | EN 1149-5 | EN 14126

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

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

MicroMax® TS Style

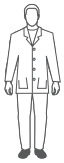
Style code 428
Coverall with elasticated hood, cuffs, waist & ankles.
Sizes: SM - 3X

Style code L428
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.
Sizes: SM - 3X

Style code 414
Coverall with elasticated hood, cuffs, waist and attached socks.
Sizes: SM - 3X

Style code L414
Coverall with elasticated hood, cuffs with thumb loops, waist and attached socks.
Sizes: SM - 3X

Style code 412
Coverall with collar, elasticated cuffs, thumb loops, waist & ankles.
Size: MD - XL



Style code 101
Lab coat with two hip pockets. 4 stud fastening.
Size: MD - XL

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

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

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

Available in: White

Not all styles are available from European stock in this fabric. Please contact our sales office for information on stock items.

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$	Pass* (<2.5 x $10^9\Omega$
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

Infectious Agent / Biological Hazard Protection

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

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

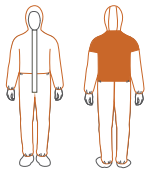
MicroMax® TS Cool Suit

TYPE 4-B | EN 1073-2 | EN 14126

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

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

MicroMax® TS Cool Suit Style



Style Code: C428
Coverall with elasticated hood, cuffs, waist and ankles. Breathable rear panel.

Sizes: SM - 3X

SUPER B-STYLE

Available in: White with orange seams and rear panel

Physical Properties

		MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	2	1	2	2	2
Flex Cracking	ISO 7854	4	5	5	5	6
Trapezoidal Tear	ISO 9073	2	3	3	3	1
Tensile Strength	EN 13934	1	1	1	1	1
Puncture Resistance	EN 863	1	2	1	1	2
Anti-static (Surface Resistance)	EN 1149-1	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)
Seam Strength	EN 13935-2	3	3	3	3	3

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	3	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	3	NT	NT	NT	NT	2	1

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

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

Infectious Agent / Biological Hazard Protection

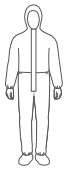
Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

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

Pyrolon™ Plus 2

TYPE 5 | TYPE 6 | EN 1073-2 | EN 1149-5 | EN 14116 INDEX 1

Pyrolon® Plus 2 Style



Style Code: 428
Coverall with elasticated hood, cuffs, waist and ankles.

Sizes: SM - 3X

Available in: White

Flame retardant Type 5 & 6 breathable coverall

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

Physical Properties

		Pyrolon™ Plus 2	Pyrolon™ XT	FR SMS Brand A	FR SMS Brand B
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	3	2	2	1
Flex Cracking	ISO 7854	6	6	6	5
Trapezoidal Tear	ISO 9073	2	3	2	1
Tensile Strength	EN 13934	1	2	1	1
Puncture Resistance	EN 863	2	2	1	1
Anti-Static (Surface Resistance)	EN 1149-1	Pass* ($<2.5 \times 10^9\Omega$)	Pass* ($<2.5 \times 10^9\Omega$)	n/a	n/a
Seam Strength	EN 13935-2	2	3	3	2

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	Pyrolon™ Plus 2		Pyrolon™ XT		FR SMS Brand A		FR SMS Brand B	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	2	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	2	3	3	3	3
O-Xylene CAS No. 75-15-0	NT	NT	NT	NT	n/a	n/a	n/a	n/a
Butanol CAS No. 75-09-2	NT	NT	NT	NT	n/a	n/a	n/a	n/a

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

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

Thermal Mannequin Testing

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

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

Pyrolon™ XT

Flame retardant Type 5 & 6 breathable coverall

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

Physical Properties

		Pyrolon™ Plus 2	Pyrolon™ XT	FR SMS Brand A	FR SMS Brand B
Property	**EN Std**	**CE Class**	**CE Class**	**CE Class**	**CE Class**
Abrasion Resistance	EN 530	3	2	2	1
Flex Cracking	ISO 7854	6	6	6	5
Trapezoidal Tear	ISO 9073	2	3	2	1
Tensile Strength	EN 13934	1	2	1	1
Puncture Resistance	EN 863	2	2	1	1
Anti-Static (Surface Resistance)	EN 1149-1	Pass* (<2.5 x $10^9\Omega$)	Pass* (<2.5 x $10^9\Omega$)	n/a	n/a
Seam Strength	EN 13935-2	2	3	3	2

* According to EN 1149-5

Chemical Repellency and Penetration EN 6530

	Pyrolon™ Plus 2		Pyrolon™ XT		FR SMS Brand A		FR SMS Brand B	
Chemical	**R**	**P**	**R**	**P**	**R**	**P**	**R**	**P**
Sulphuric Acid 30% CAS No. 67-64-1	2	3	3	3	3	3	3	3
Sodium Hydroxide CAS No. 1310-73-2	3	3	3	2	3	3	3	3
O-Xylene CAS No. 75-15-0	NT	NT	NT	NT	n/a	n/a	n/a	n/a
Butanol CAS No. 75-09-2	NT	NT	NT	NT	n/a	n/a	n/a	n/a

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

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

Thermal Mannequin Testing

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

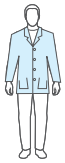
Note:-
1. The predicted body burn performance shows little difference between FSPE, Standard SMS and FR SMS with total body burn being close to 20% and including 3rd degree body burns of 5 to 8%.
2. The total predicted body burn for Pyrolon™ products is much lower at 7 to 8% with no 3rd degree burns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

Pyrolon™ XT Styles

SUPER B-STYLE by Lakeland

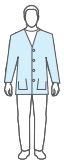
Style code 428
Coverall with elasticated hood, cuffs, waist & ankles.

Sizes: SM - 3X



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

Size: MD - XL

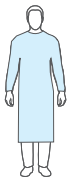


Style code 514
Jacket with elasticated cuffs.

Sizes: SM - 3X

Style code 016
Trousers with elasticated waist.

Sizes: SM - 3X



Style code 019
Rear entry gown with elasticated cuffs.

Size: MD - XL

Style code 022NS
Overshoes with anti-slip soles.

Size: One size

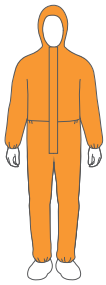
Style code 023NS
Overboots with anti-slip soles and ties.

Size: One size

Available in: Pale blue

Not all styles are available from European stock in this fabric. Please contact our sales office for information on stock items.

Why use Pyrolon™ ?



- When should Pyrolon™ FR Type 5 & 6 coveralls be used?
- Why do standard disposable suits compromise thermal protection?
- EN 14116 and Flame and Heat Protection

Many applications require both thermal protection and Type 5 & 6 protection. How do you provide both?

Currently users often wear a Thermal Protective Garment (TPG) for flame protection and wear a standard Type 5 & 6 suit OVER it for chemical 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 will melt and drip, adhering to the TPG fabric below, transferring heat energy to the skin beneath and to other surfaces, thus potentially spreading the fire.	In a flash fire situation this will dramatically increase the heat energy contacting the skin and thus the incidence of body burn.	Even in the case of contact with a small flame, a standard disposable suit fabric may ignite and cause burns.

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

EN Standard - EN 14116

Protection against Heat and Flame
Limited Flame Spread

This standard measures the tendency of a fabric to ignite and propogate a flame, using the vertical flame test method EN 15025 which applies a flame to the centre or bottom edge of a fabric sample.

Index 1 requires that any flame should not propogate to the top or sides of the fabric, that there should be no flaming debris or drips and that there should be no spreading afterglow once burning has ceased. It does however allow the flame contact to form a hole in the fabric.

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

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

Thermal Mannequin Testing: Predicted Body Burn

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

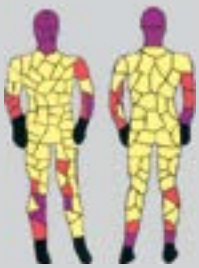
Below are three body maps using different disposables worn over a TPG.

1. A Flashpun PE disposable coverall
2. An FR SMS disposable coverall
3. A Pyrolon™ XT coverall

1 Flashpun PE over Nomex®

Predicted body burn = **23.9%**

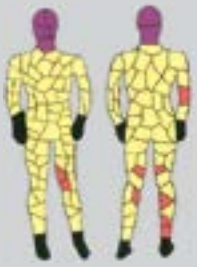
3rd degree burns? **Yes - 8.3%**



2 FR SMS over Nomex®

Predicted body burn = **19.6%**

3rd degree burns? **Yes - 4.9%**



3 Pyrolon™ XT over Nomex®

Predicted body burn = **8.2%**

3rd degree burns? **No**

The testing shows that both standard disposables such as Flashpun and FR SMS garments result in higher predicted body burn with very little difference. Only Pyrolon™ garments result in a dramatic reduction in predicted body burn.

Push-Lock® Glove Connection System

TYPE 3

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

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

- Two concentric plastic rings clip together with glove and sleeve between.
- Provides liquid-tight seal tested and approved to Type 3 Jet Spray with ChemMax® 1, 2, 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.
- Available in cartons of 20 rings (to equip 5 garments)

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

There are several advantages:-

Adhesive Tape	Push-Lock® Glove Connection
Haphazard - no control or knowledge as to whether the tape actually creates a seal.	Tested to the Type 3 Jet test with ChemMax ®1,2, 3 and 4 PLUS
Two operatives needed - the tape must be applied by another operative after the suit is donned.	The user attaches the gloves before donning the suit.
Cost - correct chemical tape for gloves sealing is expensive.	The Push-Lock® glove connection system can be used repeatedly - the more uses the more cost effective it becomes.
Cost control - very difficult to control how much tape is used.	Cost is known precisely and gets less with re-use.
Uncomfortable - tape MUST be applied tightly to the wrist if it is effective.	The Push-Lock® system sits loosely and comfortably on the wrist.
Must be removed by another operative and damages the suit sleeve, making it unusable in the process.	Suit is removed by the user with the gloves attached. Suit can be re-used if undamaged and uncon-taminated.

How does it work?

Additional Information

Selection, Use, Storage, Shelf-Life and Disposal

This guide provides advice on the selection of an appropriate protective coverall, suggesting some of the factors that may influence the selection decision. However, selection is often complex involving multiple and sometimes conflicting hazards 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's Type 5 & 6 coveralls are manufactured from polymers which are inert materials and are unaffected by normal temperatures and conditions.

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 coveralls 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.

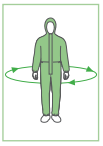
It is vital that all garments, regardless of age, but especially after a longer shelf life, are thoroughly checked for damage or wear immediately before use. Do not use any garment that appears worn or damaged. It is always the end user's responsibility to ensure any garment is fit for purpose.

Use

Regardless of age, all coveralls 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 garments 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 garments for damage, wear or contamination. Damaged or heavily contaminated garments 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 un-contaminated by any chemical, it may be re-used if appropriate.

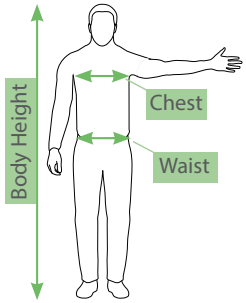
Disposal

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 of according to regulations relating to the chemical concerned.

Choosing the correct garment size

Selection of the correct garment size is important in ensuring that protection is provided, that the wearer is as comfortable as possible and in minimising tears and splits during use.

Use the chart below to select the most appropriate garment for your size



Size	Body Height (cm)	Chest (cm)	Waist (cm)
SM	164-170	84-92	82-88
MD	170-176	92-100	88-94
LG	176-182	100-108	94-100
XL	182-188	108-116	100-106
2X	189-194	116-124	106-112
3X	194-200	124-132	112-114

Note that the sizes in the chart relate to the body height, chest and waist size of the wearer and not the actual size of the coverall.

** Competitor brand results are from competitors' own websites and were correct at the time of publication. Users are recommended to check up to date information with competitors before making any assessment.*

The Lakeland range of protective clothing provides a wide choice of options for protection against hazardous chemicals and dusts.

This guide provides users with detailed information and comparisons relating to selection of the best garment for the task.

A key theme is that CE standards provide a good starting point for garment selection but should never be seen as the only factors to consider. There are numerous important issues that may affect garment choice and not all are addressed by CE standards.

The guide covers key areas of consideration; fabric choice, CE testing, protection, comfort, and garment design. It demonstrates that in most cases Lakeland choices provide the best combination of factors for most applications requiring Type 5 or 6 protection.

Lakeland Industries is the Global Leader in the design and manufacture of industrial clothing for protection against chemicals, flames and heat.

Lakeland®

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