



		ZoneGard®	SafeGard®	MicroMax®	MicroMax® NS	Pyrolon® Plus 2 [1]	Pyrolon® XT [1]	Pyrolon® CRPR [1]	ChemMax® 1 Serged Seam	ChemMax® 1 Bound Seam	ChemMax® 1 Heat Sealed Seam	ChemMax® 2 Bound Seam	ChemMax® 2 Heat Sealed Seam	ChemMax® 3	ChemMax® 4	Interceptor® [2]
<b>General Protection</b>	Dirt, Oil and Grease	•	•	•	★	•	•	•	•	•	•	•	•			
	Hazardous Dry Particulates		•	•	★	•	•	•	•	•	•	•	•			
	Non-hazardous Liquids	•	•	•	★	•	•	•	•	•	•	•	•			
	Welding, Cutting and Grinding					★	•	•								
<b>Aerosol Spray</b>	Non-hazardous Liquids (Aerosol)		•	•	★	•	•	•	•	•	•	•	•			
	Paint and Hazardous Liquids – Spray		•	•	★	•	•	•	•	•	•	•	•	•	•	
	Dry Particle - Aerosols		•	•	★	•	•	•	•	•	•	•	•	•	•	
<b>Chemical Splash</b>	Low Exposure, Low Risk Chemical Splash			•	•			•	•	•	•	★	•			
	High Exposure / High Risk							•	•	•	•	•	•	★	•	
<b>Hazmat</b>	Hazmat, NFPA Certified															★
	Hazmat, Maritime												★	•	•	
	Hazmat, Non-Certified							•		•	•	•	•	★	•	
<b>Flame Resistance</b>	Flammable Environments (Aerosol)					★	•	•								
	Flammable Liquids							★								
	Chemical Flash Fire					•	•	•								•
<b>Critical Environment / Biohazard</b>	Clean Rooms			•	★											
	Paint Booth			•	★			•	•							
	Bloodborne Pathogens [4]			•	•			•	•	•	★	•	•	•	•	•
	Waste Water Treatment			•	•			•	•	★	•	•	•	•	•	•
<b>Relative Performance [3]</b>	Comfort	5	4	2	2	4	4									
	Barrier	1	2	5	5	2	2									
	Durability	1	4	4	3	3	4									

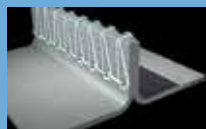
### Chart Key

- [1] Pyrolon® family of products must be worn over thermally protective garments, such as FR Cotton or FR meta aramids
- [2] Interceptor® is available certified for NFPA 1991 and CE Type 1
- [3] Relative Ratings: 1 is lowest, 5 highest, based on EN/ISO test results and relative difference between fabrics
- [4] Lakeland recommends sealed seams for protection against infectious diseases
- = May meet requirements depending on degree of hazard
- ★ = Best seller for application

### Available Seams

#### Serged Seam

- Joins two pieces of material with a thread that interlocks.
- Economical stitching method for general applications
- Generally not used for chemical protective clothing and commonly found on disposable clothing



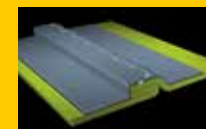
#### Sewn and Bound Seam

- Joins two pieces of material with an overlay of similar material
- Chain stitched through all of the layers for a clean finished edge
- Provides increased holdout of liquids and dry particulates



#### Heat Sealed Seam

- Sewn and then sealed with a heat activated tape
- Provides liquid proof seams, and is especially useful for Level A and B chemical protective clothing.



# Lakeland Materials & Chemical Performance Data

## ZoneGard®

- 38 gram heavy Spunbonded Polypropylene
- Entry level garment for dirty work

## SafeGard® SMS

- 45 gram Spunbonded Meltblown Spunbonded Polypropylene
- High breathability
- Good barrier to dry particulates, aerosols and light liquid hazards

## MicroMax® NS

- Microporous Film laminated to Polypropylene substrate
- Excellent barrier to dry particulates and liquid hazards
- Blood-borne pathogen/viral barrier tested
- Top seller in the industrial market category; refer to Additional Reference Material [1] [2] [4]

## MicroMax®

- Same protection as MicroMax® NS with the addition of a rip-stop scrim for added durability.

## MicroMax® Cool Suit:

- Breathable SMS back panel
- Best combination for comfort and barrier

## Pyrolon® Plus 2

- Flame Resistant
- Dry and light liquid splash protection
- Meets NFPA 2113 requirements
- See comparison data against Chinese FR Spun-laced and FR SMS products [3] [5] [6] [7]

## Pyrolon® XT

- Same as Pyrolon Plus 2 with rip-stop scrim for added durability

## Pyrolon® CRFR

- Chemical Resistant and Flame Resistant
- Excellent for protection against flammable liquids
- Specifically designed for petrochemical, refinery and utility applications
- Meets NFPA 2113 requirements
- For further information refer to [2]

## ChemMax® 1

- Polyethylene coated Polypropylene fabric
- Good hold out to acids and bases
- Economical and lightweight

## ChemMax® 2

- Dow Saranex® 23P film laminated to bi-component spunbond nonwoven
- Moderate to high chemical resistance
- Very good choice for chemical handling and environmental clean-up

## ChemMax® 3

- Softer feel
- Excellent choice for Petrochemical and Hazmat operations
- Chemical Warfare Agent tested

## ChemMax® 4

- 6 layer protective barrier film protection
- Superior chemical resistance
- Soft flexible feel not found in competitive fabrics
- Excellent choice for Hazmat and Petrochemical operations

## Interceptor®

- Lakeland's highest level of chemical protection
- NFPA 1991 and CE type 1 certified
- Level A configurations for gas/vapor hazards
- Also available in non-level A configurations

Additional Reference Material Available at [www.lakeland.com/resources.html](http://www.lakeland.com/resources.html)

## Literature

[1] [Disposable and Chemical Protective Clothing Performance and Selection Guide](#)

[2] [Disposable and Chemical Protective Clothing Buyers Guide](#)

[3] [Pyrolon® Plus 2 vs Alternate FR Disposables Guide](#)

## Videos

[4] [Disposable Clothing Case Study](#)

[5] [Pyrolon® Plus 2 Disposable FR Garments](#)

[6] [Pyrolon® Plus 2 vs FR Alternatives](#)

[7] [Pyrolon® Plus 2 Repellency](#)

## Comparative Chemical Fabric Performance Data

Test Method	ChemMax®1	ChemMax®2	ChemMax®3	ChemMax®4	Interceptor®	
<b>Basis Weight</b>	ASTM D3776-90 & D751	2.29 oz/y <sup>2</sup>	4.3 oz/y <sup>2</sup>	4.5 oz/y <sup>2</sup>	6.5 oz/y <sup>2</sup>	9.0 oz/y <sup>2</sup>
<b>Thickness</b>	D1777-75	15 mil	16 mil	16 mil	24 mil	25 mil
<b>Trapezoidal Tear MD</b>	ASTM D5733	14 lbf	30 lbf	26 lbf	52 lbf	44 lbf
<b>Trapezoidal Tear XD</b>		14 lbf	13 lbf	20 lbf	37 lbf	58 lbf
<b>ASTM F1001 Permeation Times: Green denotes &gt;480 minutes</b>						
Acetone						
Acetonitrile						
Anhydrous Ammonia						
1,3 Butadiene						
Carbon Disulfide						
Chlorine						
Dichloromethane						
Diethylamine						
Dimethyl Formamide						
Ethyl Acetate						
Ethylene Oxide						
n-Hexane						
Hydrogen Chloride						
Methanol						
Methyl Chloride						
Nitrobenzene						
Sodium Hydroxide						
Sulfuric Acid						
Tetrachloroethylene						
Tetrahydrofuran						
Toluene						

## Pyrolon® CRFR Penetration Data, 2.5 Mil, ASTM F903

Challenge Chemical	CAS Number	Physical State	Penetration Result
Acetone	67-64-1	Liquid	>60
Benzene	71-43-2	Liquid	>60
Diesel Fuel	N/A	Liquid	>60
Crude Oil	N/A	Liquid	>60
Hydrochloric Acid	7647-01-0	Liquid	>60
Sodium Hydroxide, 50%	1310-73-2	Liquid	>60

Note: A complete listing of all chemicals that have been tested, and their performance data, can be found at: [www.lakeland.com/chemmax-chemical-search.html](http://www.lakeland.com/chemmax-chemical-search.html)

### ATTENTION!

As always, decisions regarding choice and usage of chemical protective clothing for a particular situation must be made by trained and qualified safety professionals in accordance with OSHA and EPA rules and regulations. Please see Warranty and Warnings on pages 20-21 of the *Lakeland Disposable and Chemical Protective Clothing Buyers Guide* for complete details.

