



		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]
General Protection	Dirt, Oil and Grease	•	•	•	★	•	•	•	•	•	•	•	•	•	•	•
	Hazardous Dry Particulates	•	•	•	★	•	•	•	•	•	•	•	•	•	•	•
	Non-hazardous Liquids	•	•	•	★	•	•	•	•	•	•	•	•	•	•	•
	Welding, Cutting and Grinding				★	•	•									
Aerosol Spray	Non-hazardous Liquids (Aerosol)		•	•	★	•	•	•	•	•	•	•	•	•	•	•
	Paint and Hazardous Liquids – Spray		•	•	★	•	•	•	•	•	•	•	•	•	•	•
	Dry Particle - Aerosols		•	•	★	•	•	•	•	•	•	•	•	•	•	•
Chemical Splash	Low Exposure, Low Risk Chemical Splash			•	•			•	•	•	★	•	•	•	•	•
	High Exposure / High Risk							•	•	•	•	•	•	★	•	•
Hazmat	Hazmat, NFPA Certified															★
	Hazmat, Maritime											★	•	•	•	•
	Hazmat, Non-Certified							•	•	•	•	•	★	•	•	•
Flame Resistance	Flammable Environments (Aerosol)					★	•	•								
	Flammable Liquids							★								
	Chemical Flash Fire					•	•	•								•
Critical Environment / Biohazard	Clean Rooms			•	★											
	Paint Booth			•	★			•	•							
	Bloodborne Pathogens [4]			•	•			•	•	•	★	•	•	•	•	•
	Waste Water Treatment			•	•			•	•	★	•	•	•	•	•	•
Relative Performance [3]	Comfort	5	4	2	2	4	4									
	Barrier	1	2	5	5	2	2									
	Durability	1	4	4	3	3	4									

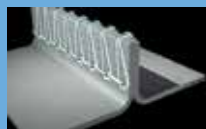
Chart Key

- [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



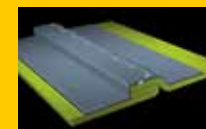
Sewn and Bound Seam

- 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

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®	
Basis Weight	ASTM D3776-90 & D751	2.29 oz/y ²	4.3 oz/y ²	4.5 oz/y ²	6.5 oz/y ²	9.0 oz/y ²
Thickness	D1777-75	15 mil	16 mil	16 mil	24 mil	25 mil
Trapezoidal Tear MD	ASTM D5733	14 lbf	30 lbf	26 lbf	52 lbf	44 lbf
Trapezoidal Tear XD		14 lbf	13 lbf	20 lbf	37 lbf	58 lbf
ASTM F1001 Permeation Times: Green denotes >480 minutes						
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

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.

