



Pyrolon® Plus 2 vs. Alternate FR Disposables

Know the Facts: FR Protection Is More Than Just a Label...
You Deserve the Protection You Are Paying For.



Performance and Selection Guide

Disposable Secondary FR Garments are designed to protect and extend the life of expensive Primary FR Garments. The barrier that a Disposable FR Garment provides against oil, grease, and other workplace substances can reduce laundering expenses for the primary garment while actually *increasing* worker protection. However, if the disposable garment you have selected is **not** providing **true FR protection**, you are only wasting money and can actually be *decreasing* worker safety.

Recently, a number of secondary disposable FR garments made of lower cost Chinese fabric have entered the work place. We had several of them tested and found they offer surprisingly little ability to protect wearers from potentially life-threatening burns.

Testing Protocol

Lakeland obtained various secondary protective garments being promoted as FR. Three of each of these garments were provided to a highly regarded independent Thermal Mannequin testing lab in North Carolina where, along with Lakeland's Pyrolon® Plus 2, they were put through a standard battery of burn testing.

as the FR standard they meet. NFPA 701 is a standard for drapes, blinds, and other window coverings. You protect your FR clothing with disposable FR coveralls not drapes. Shouldn't you make sure the correct NFPA 2113 standard- for clothing- applies?

Oddly, the three competitive products cite on their labels NFPA 701

You owe it to your workers to carefully review the test data below and make an informed purchase decision.

Test Fabrics				
Content Data	Sample 1	Sample 2	Sample 3	Lakeland Pyrolon® Plus 2
Fabric per label	100% wood based Polyester blend	Proprietary name	Flame Resistant SMS, 100% Polypropylene	Proprietary name
Analyzed content	50% Polyester/50% Rayon Spunlace Nonwoven	40% Polyester/60% Rayon Spunlace Nonwoven	100% Polypropylene	45% Polyester/55% Woodpulp Spunlace Nonwoven
Standard Cited	NFPA 701	NFPA 701	NFPA 701	NFPA 2113/ ASTM F1930
Fabric Origin	China	China	China	USA

Repellency Testing

Water, alcohol and oil repellency are all good indicators of the overall repellency to industrial solvents, machine oil, hydraulic fluids, lubricating greases and other insults used extensively throughout industry. If the secondary FR garment does not keep these out, it is not doing its job of protecting the garment, nor the person wearing it. A product that has limited repellency will allow insults to soak their

way through to the primary FR garment. This causes the wearer to receive higher percentage of body burns in the event of a flash fire.

Because Lakeland's Pyrolon® Plus 2 can repel these substances, its overall performance far exceeds the other competitive FR disposable garments in overall protection.

Repellency Data • (Highest score is best)				
	Sample 1	Sample 2	Sample 3	Lakeland Pyrolon® Plus 2
Water Spray (0-100) – WSP 50.1 Test Method	0	0	85	50
Alcohol Drop (0-10) WSP 80.1 Test Method	0	0	3	7
Oil Repellency (0-8) AATCC 118 Test Method	0	0	0	5

* Note: Zero represents immediate penetration through the fabric*

Burn Data

Only Lakeland’s Pyrolon® Plus 2 provides any significant prevention of burns when testing for oil penetration. Each of the competitive products allows oil to reach the primary FR garment underneath, **and the skin of the person wearing it... who will be burned...**

Heat Flux in the Burn Test with the competitive products is two

to three times higher than with Pyrolon® Plus 2. The data shows that Pyrolon® Plus 2 significantly improves the performance of the Nomex primary garment by cutting Heat Flux by more than half and reducing the maximum temperature next to the skin by more than 100 degrees.

Burn Data					
	Nomex III A (alone)	Sample 1	Sample 2	Sample 3	Lakeland Pyrolon® Plus 2
% Oil Repelled	52	41	41	83	98
% Oil in Secondary Garment	N/A	30	28	14	2
% Oil in Primary Nomex Garment	32	22	22	2	0
% Oil on Skin	16	7	9	1	0
Maximum Temp Next to Skin	780	754	728	779	668
Heat Flux during 1.5 Min of Burn Test	3446	4151	4282	3039	1568

* Note: Insults with Oil followed the ISO6530 Gutter Test*

Flame Response Data

Test data show that only Lakeland’s Pyrolon® Plus 2 prevents additional body burn from “oil strike through” and the secondary garment itself burning... the other three can actually make the burn worse.

Flame Response Data				
	Sample 1	Sample 2	Sample 3	Lakeland Pyrolon® Plus 2
Additional Body Burn from Oil Strike Through	Yes	Yes	Yes	NO
Additional Body Burn from Secondary Garment	Yes	Yes	Yes	NO

* Note: Above data base on Thermal Mannequin Test *

How do you determine the best fabric choice for the Secondary FR garment market?

The best choice for secondary FR protective apparel is the one that most effectively protects wearers in the event of chemical saturation and flash fires. None of the China-made fabrics tested provide adequate protection from chemical saturation or flash fire.

Pyrolon® Plus 2, in conjunction with a primary FR garment, will protect wearers far more effectively from chemical saturation and will not increase the injuries from a flash fire. You owe it to your workers to give them an effective layer of secondary FR protection that performs as advertised..

That means being informed and checking the label for the fabric your secondary FR garments are made of to make sure they are FR tested according to the correct standard- for clothing. Have they been Thermal Mannequin tested according to ASTM F1930 as required by NFPA 2113 and do they meet it?

Pyrolon Plus 2 is the only one of those tested that meets the correct NFPA standard for FR clothing. It is assembled in Mexico of US made fabric. Unfortunately, it appears that if your garments are made in China or of Chinese fabric, or cite a drapery NFPA standard, odds are you are not giving your workers the protection you think you’re paying for and you are unknowingly putting them at risk

Pyrolon® Plus 2

- **Greater Barrier**
- **High Strength**
- **Excellent abrasion resistance**
- **Light liquid splash and dry particulate protection**
- **Meets NFPA 2113 requirements**

Please contact Lakeland or your local Lakeland distributor, who will be pleased to help you analyze the hazards of your work environment and select the most appropriate and cost-effective solution.



Protect Your People™

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