

ES&H Safety Manual, Chapter 19, Appendix F. Flame-Resistant (FR) Lab Coat Selection Guide Matrix

FR Type	Product Name	Manufacturer(s)	FR Rating/Test	Fabric Weight (oz/yd)	% Laundering Shrinkage	Laundering Colorfastness	% Moisture Regain	Tenacity (lbs)	Chemical & Other Incompatibilities / Limitations	Garment Life / Color Options	Standard Sizes / Comfort	Price	Risk Level (RL) Recommendation
Inherently FR	Nomex IIIA	Bulwark Dupont	NFPA 2112, NFPA 70E	4.5 - 7.3	<2 - 3.5	Fair to Good	4.5 - 5.5 (moderate)	240 x 150	No chemical splash protection. Good resistance to alkalis. Unaffected by most acids, unless exposed for long periods to high concentration acids. No chlorine bleach laundering.	Excellent, Reported to last 3-5 times longer than cotton or chemically treated garments / Many color options	M - XXXL Semi-breathable – not as good as cotton. Can feel bulkier than cotton, “itchy”, stiff, or rough	\$100/ea	For use up to RL-A Highest FR protection rating, most durable, longest life, fewest chemical incompatibilities. Cost higher than most other FR.
Inherently FR	Tecasafe Plus Cool Touch 2	TenCate Bulwark	NFPA 2112, NFPA 70E	5.8 - 8.5	<3	Fair to Good	No data	135 X 85 lbs	No chemical splash protection. Newer material.	Excellent / Many	M - XXXL Semi-breathable, Can feel bulkier than cotton, “itchy”, stiff, or rough May not be widely available as Nomex.	\$80/ea	For use up to RL-A Highest FR protection rating, most durable, longest life, fewest chemical incompatibilities. Cost lower than Nomex, but higher than most treated FR.
Inherently FR	Tecgen	Ashburn Hill Corp.	NFPA 2112	5.5	<3	Fair to Good	6	110 X 80 lbs	No specific info. available	No specific info available	All sizes	TBD	More info needed
Chemically Treated FR: Cotton Blend 88%/12% nylon -THPS or THPC	Indura Ultra Soft Arapaho KLL6	Westex Unknown Bulwark	NFPA 2112, NFPA 70E	7 - 9	3 - 5	Fair	8.5 - Arapaho	130 x 100, 110 x 100 – Arapaho 129 x 60 - KLL6	FR properties degraded by petroleum and other flammable liquids. Not splash resistant. No chemical splash protection. Degraded by acids. No chlorine bleach laundering. Flame-resistant fabrics treated with a phosphorus containing flame retardant should not be used in chemical operations where contact with strong oxidizers (e.g. >10% sodium hypochlorite, NaOCL) or reducing agents (e.g. sodium hydrosulfite, Na2S2O4) is possible. Contact with these chemicals may result	Good / Many Cotton has poor resistance to mildew, aging, sunlight. Nylon content improves abrasion resistance. FR guaranteed for life of product. Reportedly 50% longer than 100% cotton.	M - XXXL Breathable, soft, more comfortable than synthetics	\$60/ea	For use up to RL-B High FR protection rating, chemical incompatibilities with select oxidizers and reducing agents. Feels similar to standard cotton-blend lab coats. Cost lower than Nomex and other inherent FR.

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									in chemical burns to the wearer. Not ideal for static control.				
Chemically Treated FR: 100% Cotton FR – THPS or THPC	Indura FR Excel FR KEL2 Apache	Westex Bulwark Unknown	NFPA 2112 Excel FR is NOT NFPA 2112 rated	4 - 9	3 - 5	Fair	8.5 - Arapaho	115 X 85 110 x 100 - Apache	FR properties degraded by petroleum and other flammable liquids. Not splash resistant. No chemical splash protection. Degraded by acids. No chlorine bleach laundering. Flame-resistant fabrics treated with a phosphorus containing flame retardant should not be used in chemical operations where contact with strong oxidizers (e.g. >10% sodium hypochlorite, NaOCL) or reducing agents (e.g. sodium hydrosulfite, Na2S2O4) is possible. Contact with these chemicals may result in chemical burns to the wearer. Not ideal for static control.	Good / Many Cotton has poor resistance to mildew, aging, sunlight. FR guaranteed for life of product.	M - XXXL Breathable, soft, more comfortable than synthetics	\$60/ea	For use up to RL-B High FR protection rating, chemical incompatibilities with select oxidizers and reducing agents. Feels similar to standard cotton lab coats. Cost lower than Nomex and other inherent FR
None	100% Cotton	Various	None	4-11	5	Fair	Cotton is very absorbent	Varies based on fabric weight	Not splash resistant. No chemical splash protection. Degraded by acids.	Good / Many Poor resistance to mildew, aging, sunlight	M - XXXL Lightweight and breathable. Highest comfort.	Varies	For use up to RL-C Ignites less readily than polyester blends.
None	Polyester / Cotton Blend (80 / 20), (65 / 35)	Various	None	4-9	3	Fair	Fair to Good	Varies based on fabric weight	Splash resistant. No chemical splash protection. Anecdotal evidence suggests polyester blends provide better protection against corrosive material than cotton.	Good / Many Poor resistance to mildew, aging, sunlight. Nylon content improves abrasion resistance.	M - XXXL Lightweight and breathable. More cotton in the blend results in better breathability.	Varies	Polyester blends burn readily when ignited and adhere to skin causing more severe burns. Not appropriate for use with flammable liquids, pyrophoric material