



TRUSTED AND PROVEN FR FABRIC SOLUTIONS

WHEN IT COMES TO
FR SAFETY | WE ARE
ALL IN

**WESTEX**[®]
by *Milliken*

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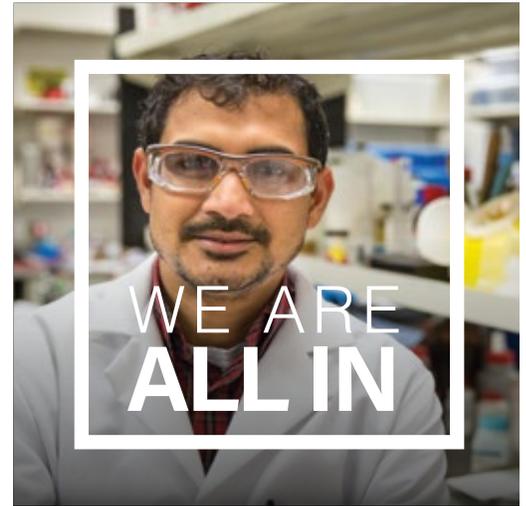
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WHEN IT COMES TO
FR SAFETY | WE ARE
ALL IN

Our Commitment to FR Worker Safety

At Westex by Milliken, we go all in for worker safety. We are leaders in secondary arc rated (AR) and flame resistant (FR) protection, backed by 150 years of Milliken innovation. We go further than anyone else to ensure workers are protected, comfortable and able to return home safely each night.

At the heart of our commitment is engineering: scientific expertise and advanced, custom-made equipment that guarantees flame resistance for the life of the garment. Our fabrics don't just meet standards — they are market proven, with tens of millions of yards out in the field. Being all in is also about driving innovation — integrating safety and comfort in ways that were once considered impossible. Through our extensive educational outreach, we have helped millions of workers better understand arc flash, flash fire and other thermal hazards. That's what being all in is about: innovation, exceptional engineering and education.

For more information, visit westex.com/fabrics ►

Science is the Key to FR Fabric Technology

There is a great deal of science that goes into making any type of FR fabric. The truth is that manufacturing FR fabrics is complicated, and the fabric is the key part of the garment's AR/FR protection. Make sure that the FR fabric in your garment is manufactured by a credible supplier you trust — your safety depends on it.

At Westex by Milliken, we offer an extensive portfolio of AR/FR fabrics that include various types of fibers, yarns and FR technologies. We guarantee all of our product lines to be flame resistant for the life of the garment. Our team of engineers uses state-of-the-art equipment, advanced proprietary processes and patented technologies to deliver the best possible AR/FR fabrics in the marketplace. We are an industry leader, with our fabrics worn by thousands of workers worldwide, backed by 150 years of Milliken innovation.



FR / AR Product Portfolio

Guaranteed Flame Resistant for the Life of the Garment.

Cotton & Cotton Rich

- Westex UltraSoft®
- Westex UltraSoft AC®
- Westex UltraSoft Flex
- Westex TrueComfort®
- Westex Indura®
- Westex Indigo®

Blends

- Westex DH Air™
- Westex DH
- Aramid
- Westex Synergy Pro
- Westex Synergy®
- Westex CXP®

Specialty

- Westex Vinex®
- Westex AllOut®
- Westex InsulAir®

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AR/FR PRODUCT PORTFOLIO



Westex UltraSoft®, our most popular fabric, has a strong reputation for providing an excellent balance of protection, comfort and value. Westex UltraSoft® was first introduced two decades ago and today is specified by name by thousands of end users globally.

Westex UltraSoft® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
0341	5.5 oz 2x1 Twill	88% Cotton, 12% High Tenacity Nylon	6.1 ATPV	No	61"	6.5 (220)		Shirts
0130	6.0 oz Interlock Knit	88% Cotton, 12% High Tenacity Nylon	10.9 ATPV	No	61"	6.5 (220)		T-shirts, Henleys, Polos
0131	6.0 oz Rib Knit	86% Cotton, 12% High Tenacity Nylon, 2% Spandex	12.1 ATPV	No	51.5"	6.7 (226)		Cuffs, Collars, Balaclavas
5568	6.5 oz 4x1 Twill	88% Cotton, 12% High Tenacity Nylon	9.5 ATPV	Yes (27.9%)	60/61"	6.5 (220)		Shirts
0301	7.0 oz 3x1 Twill	88% Cotton, 12% High Tenacity Nylon	8.7 ATPV	Yes (21.9%)	62.5"	7.7 (260)		Shirts, Lightweight Coveralls
5572	7.7 oz 3x1 Twill High-Vis	88% Cotton, 12% High Tenacity Nylon	9.2 ATPV	Yes (13.4%)	62.5"	7.7 (260)		Shirts, Lightweight Coveralls
0871	9.0 oz Canvas	88% Cotton, 12% High Tenacity Nylon	12 ATPV	Yes (7.7%)	66"	9.0 (305)		Pants, Jackets, Coveralls
0451	9.0 oz 3x1 Rugged Twill	88% Cotton, 12% High Tenacity Nylon	12.4 ATPV	Yes (7.2%)	63"	9.7 (330)		Pants, Jackets, Coveralls, Bib Overalls
0851	10.0 oz Sateen	88% Cotton, 12% High Tenacity Nylon	13.5 ATPV	Yes (6.6%)	62"	10.3 (350)		Pants, Arc Flash Suits (0851 over 0851 = 45 ATPV)
0181	10.5 oz Rib Knit	86% Cotton, 12% High Tenacity Nylon, 2% Spandex	24.7 ATPV	Yes (trim)	47"	11.0 (373)		Cuffs, Collars, Balaclavas
0180	11.0 oz Fleece	88% Cotton, 12% High Tenacity Nylon	21.8 Ebt	Yes (7.2%)	68"	11.5 (390)		Sweatshirts, Hoodies
0961	11.0 oz Duck	88% Cotton, 12% High Tenacity Nylon	12.7 ATPV	Yes (7.4%)	64"	11.0 (372)		Pants, Jackets, Bib Overalls
0801	13.0 oz Heavyweight Sateen	88% Cotton, 12% High Tenacity Nylon	21 ATPV	No	62"	12.7 (430)		Pants, Jackets



When comfort is the concern, Westex UltraSoft AC® is the top choice. A higher construction and finer yarns than UltraSoft® fabric are combined with our proprietary advanced softening technology to make the Westex UltraSoft AC® fabric the most comfortable fabric on the market.

Westex UltraSoft AC® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
0901	7.0 oz 3x1 Twill	88% Long-Staple Cotton, 12% High Tenacity Nylon	8.3 ATPV	Yes (21.9%)	60	7.5 (254)		Shirts, Lightweight Coveralls



Westex UltraSoft® Flex FR fabric is designed to bend with your workers as they move in their jobs — giving them enhanced comfort and greater mobility while they work. Plus, they'll have the excellent softness, shrinkage control and guaranteed flame resistance that's only possible with Westex by Milliken's advanced, proprietary engineering process.

Westex UltraSoft® Flex Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
0304	7.0 oz Twill	87% Cotton, 7% High Tenacity Nylon, 5% Polyester, 1% Spandex	8.7 ATPV	Yes (13.66%)	67"	7.5 (254)		Shirts, Lightweight Coveralls

AR/FR PRODUCT PORTFOLIO



Designed with homecare laundering in mind, Westex TrueComfort® is an exceptionally comfortable multi-hazard fabric. It provides excellent air permeability and increased mobility over other FR fabrics.

Westex TrueComfort® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
0152	5.0 oz 2x1 Twill	100% Long Staple Cotton	5.6 ATPV	No	56"	5.0 (170)		Shirts
0128	6.0 oz Interlock Knit	100% Cotton	8.9 ATPV	Yes (10.2%)	60"	6.4 (217)		Henleys, Polos, T-shirts
0129	6.5 oz Rib Knit	97% Cotton, 3% Spandex	10 ATPV	Yes (Trim)	51"	6.7 (226)		Cuffs, Collars, Balaclavas



Westex Indura® was the first cotton fabric engineered to provide guaranteed flame resistance for the life of the garment. First introduced in 1987, Westex Indura® is still popular today for use in jackets and pants in the metals industry, and in coveralls for budget conscious contractors.

Westex Indura® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
0020	7.0 oz 3x1 Twill	100% Cotton	8.4 ATPV	Yes (35%)	62"	7.5 (254)		Shirts, Lightweight Coveralls
0030	7.0 oz 3x1 Twill	100% Cotton	7.7 ATPV	Yes (23%)	62"	7.5 (254)		Shirts, Lightweight Coveralls
0085	9.0 oz 4x1 Sateen	100% Cotton	11.5 ATPV	Yes (7.7%)	60.5"	9.5 (322)		Pants, Coveralls, Jackets
0045	9.0 oz 3x1 Rugged Twill	100% Cotton	10.8 ATPV	Yes (10.6%)	65"	9.7 (330)		Pants, Coveralls, Jackets
0315	13.0 oz USS Whipcord	100% Cotton	12.9 ATPV	No	63"	13.5 (457)		Pants, Jackets
0037	7.0 oz Plain Weave Pocketing	100% Cotton	N/A	Certified as Pocketing	59"	7.2 (244)		Pocketing



Westex Indigo® is a superior line of FR denim fabrics that combines the look of everyday jeans wear with protective, comfortable and reliable industrial workwear.

Westex Indigo® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
0319	11.75 oz 2x1 Twill Denim	100% Cotton	17 ATPV	Yes (6.56%)	68"/67"	12.4 (420)		Jeans
0320	11.75 oz 3x1 Twill Stretch Denim	93% Cotton, 6% Polyester, 1% Spandex	17 ATPV	Yes (6.6%)	60"	12.0 (406)		Jeans
0310	12.0 oz 3x1 Twill Denim Top Dye Sulfur	100% Cotton	19 ATPV	Yes (7.2%)	63.5"	12.0 (406)		Jeans
0312	12.5 oz 3x1 Twill Stretch Denim	99% Cotton, 1% Spandex	17 ATPV	Yes (7.0%)	62.5"	12.5 (424)		Jeans
0313	13.5 oz 3x1 Twill Denim	100% Cotton	19 ATPV	Yes (7.2%)	65"	13.5 (458)		Jeans
0308	14.0 oz 3x1 Twill Denim	100% Cotton	22 ATPV	Yes (7.0%)	65"	14.5 (492)		Jeans



OUR PERFORMANCE FR / AR FABRIC FAMILY IS GROWING!

EXCELLENT MULTI-HAZARD PROTECTION
 NFPA 2112 · NFPA 70E Category 2 · ANSI 107



Our new, patent pending, Westex® DH Air™ brings all of the great characteristics you've come to love from Westex® DH, to a lightweight, Cat 2 fabric.

Westex® DH Air™ Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm ²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd ² (g/m ²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
8811	5.5 oz 2x1 Twill	47% Lenzing™ Lyocell, 38% Modacrylic, 15% Aramid	9.1 ATPV	Yes (31.7%)	60"	5.5 (186)		Lightweight Shirts, Lightweight Coveralls



With its uniquely woven blend, Westex® DH provides outstanding breathability and optimized moisture management to keep the wearer cooler, drier and more comfortable. Westex® DH also retains an excellent after-wash appearance, with a low propensity for pilling

Westex® DH Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm ²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd ² (g/m ²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
0680/ 0681	4.5 oz Jersey Knit Base Layer	48% Lenzing™ Lyocell, 40% Modacrylic, 12% Aramid	4.7 ATPV	Yes (42.6%)	63"	4.5 (152)		Base Layer Shirt
6800	5.5 oz 2x1 Twill	48% Lenzing™ Lyocell, 40% Modacrylic, 12% Aramid	6.6 ATPV	Yes (30.6%)	60"	5.5 (186)		Lightweight Shirts, Vests
6820/ 6830	6.5 oz 2x1 Twill	48% Lenzing™ Lyocell, 40% Modacrylic, 12% Aramid	8.9 ATPV	Yes (18.3%)	60"	6.5 (220)		Lightweight Shirts, Coveralls
6860/ 6870	7.5 oz 2x1 Twill	48% Lenzing™ Lyocell, 40% Modacrylic, 12% Aramid	8.8 ATPV	Yes (11.2%)	60"	7.5 (254)		Shirts, Pants, Coveralls, Jackets
6920	8.0 oz 2x2 Canvas	48% Lenzing™ Lyocell, 40% Modacrylic, 12% Aramid	11 ATPV	Yes (9.3%)	60"	8.0 (271)		Pants, Coveralls, Jackets
6890	8.5 oz 2x1 Twill	48% Lenzing™ Lyocell, 40% Modacrylic, 12% Aramid	8.8 ATPV	Yes (10.1%)	60"	8.5 (288)		Pants, Coveralls, Jackets

AR/FR PRODUCT PORTFOLIO

Westex Synergy® Pro

Westex Synergy® Pro is the next evolution of our Aramid offering at Westex by Milliken. Through thoughtful design, Westex Synergy® Pro offers a softer hand for end-user comfort and improved color uniformity when compared to Westex Synergy®.

Westex Synergy® Pro Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1530 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
7346	4.5 oz Plain Weave	93% Teijinconex® Neo, 5% Twaron, 2% Antistat	5.4 ATPV	Yes (34.2%)	66"	4.5 (152)	 	Shirts, Lightweight Coveralls
7366	6.0 oz Plain Weave	93% Teijinconex® Neo, 5% Twaron, 2% Antistat	6.1 ATPV	Yes (20.5%)	66"	6.0 (203)	 	Pant, Coverall, Jacket

Westex Synergy®

Westex Synergy® is made with 100% Nomex® IIIA. Nomex® is an inherent fiber and has been a leader in heat and flame protection for more than 45 years.

Westex Synergy® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1530 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
6241	4.5 oz Plain Weave	93% Nomex, 5% Kevlar, 2% Antistat	5.1 ATPV	Yes (27.3%)	66"	4.5 (152)	 	Shirts, Lightweight Coveralls
6150	5.0 oz Plain Weave	93% Nomex, 5% Kevlar, 2% Antistat	5.2 ATPV	Yes (24.6%)	60"	5.0 (170)	 	Shirts, Lightweight Coveralls
6261	6.0 oz Plain Weave	93% Nomex, 5% Kevlar, 2% Antistat	6.0 ATPV	Yes (21.0%)	66"	6.0 (202)	 	Pant, Coverall, Jacket
6460	6.5 oz 2x1 Twill	93% Nomex, 5% Kevlar, 2% Antistat	6.8 ATPV	Yes (15.8%)	60"	6.5 (220)	 	Pant, Coverall, Jacket
6170	7.5 oz Plain Weave	93% Nomex, 5% Kevlar, 2% Antistat	7.0 ATPV	Yes (11.8%)	60"	7.5 (254)	 	Shell, Pant, Jacket

Westex CXP®

The most comfortable aramid fabric. Westex CXP® is made with 100% Nomex® IIIA and a patented Softouch Technology™ process that provides improved breathability, longer lasting color and a softer hand.

Westex CXP® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1530 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
6001	4.5 oz Plain Weave with Softouch Technology™	100% Nomex® IIIA	5.6 ATPV	Yes (28.9%)	60"	4.5 (152)	 	Shirts, Lightweight Coveralls
6000	6.0 oz Plain Weave with Softouch Technology™	100% Nomex® IIIA	7.2 ATPV	Yes (16.4%)	60"	6.0 (202)	 	Shirts, Pants, Coveralls, Jackets

Westex Vinex®

With a unique ability to shed molten metal aluminum, Westex Vinex® continues to set the standard as the benchmark fabric in today's aluminum industry. Westex Vinex® fabrics have been successfully incorporated into protective clothing programs at major aluminum companies worldwide for nearly three decades. Westex Vinex® provides better wearer comfort than other competitive wool brands.

Westex Vinex® Fabrics								
STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1530 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
1201	6.0 oz Plain Weave	85% Vinal, 15% Polynosic	5.6 ATPV	No	59"	6.0 (203)	 	Shirts
1200	8.5 oz 3x1 Twill	85% Vinal, 15% Polynosic	8.1 ATPV	No	58.5"	8.5 (288)	 	Jackets, Pants, Shirts
1204	11.5 oz 3x1 Twill	85% Vinal, 15% Polynosic	10.7 ATPV	No	59"	11.5 (390)	 	Heavyweight Jackets, Pants

AR/FR PRODUCT PORTFOLIO



Westex AllOut® fabrics provide durable water repellency and enhanced wind resistance while maintaining good breathability. Westex AllOut® fabrics eliminate the need for a non-compliant NFPA 2112 vapor barrier. Westex AllOut® is great on its own or paired with Westex InsulAir® lining for excellent outdoor protection in extreme weather.

Westex AllOut® Fabrics

STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
6159	6.5 oz Aramid Water & Wind Resistant	100% Nomex® IIIA	7.3 ATPV	Yes (16.9%)	60.5"	6.6 (223)		Jackets, Bib Overalls, Outerwear
0303	8.5 oz 3x1 Lightweight Twill Water & Wind Resistant	88% Cotton, 12% High Tenacity Nylon	12 ATPV	Yes (14.5%)	62.5"	8.5 (288)		Jackets, Bib Overalls, Outerwear
9963	12.0 oz Duck Water & Wind Resistant	88% Cotton, 12% High Tenacity Nylon	20 ATPV	Yes (6.8%)	62"	12.0 (407)		Jackets, Bib Overalls, Outerwear



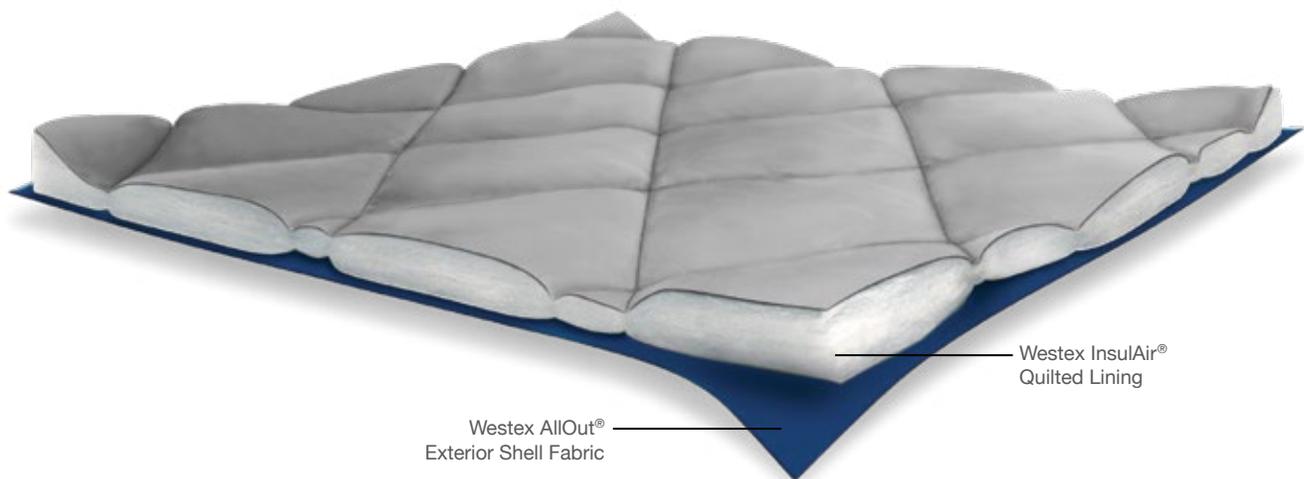
A new line of quilted products made with silica rayon and poly high loft. Westex InsulAir® offers excellent protection in cold outdoor environments at a great value.

Westex InsulAir® Fabrics

STYLE	DESCRIPTION	CONTENT	ARC RATING (cal/cm²)	NFPA 2112 CERTIFIED (ASTM F1930 BODY BURN %)	CUTTABLE WIDTH	SPEC WEIGHT oz/yd² (g/m²)	LAUNDRY	TYPICAL GARMENT APPLICATIONS
5400	10.0 oz Cold Weather Quilted Lining	Face Cloth: Indura® 100% Cotton Batting: 80% Silica Rayon, 20% Polyester	46 ATPV*	Yes (Quilting)	62"	10.0 (339)		Outerwear, Insulated Jackets, Insulated Bib Overalls
5401	13.5 oz Cold Weather Quilted Lining	Face Cloth: Indura® 100% Cotton Batting: 80% Silica Rayon, 20% Polyester	69 ATPV*	Yes (Quilting)	62"	13.5 (458)		Outerwear, Insulated Jackets, Insulated Bib Overalls
5403	15.3 oz Cold Weather Quilted Lining	Face Cloth: Indura® 100% Cotton Batting: 80% Silica Rayon, 20% Polyester	73 ATPV*	Yes (Quilting)	62"	15.3 (520)		Outerwear, Insulated Jackets, Insulated Bib Overalls

* Arc rating when paired with Westex AllOut® style 0303.

Other multi-layer system arc ratings available, contact Westex for details.

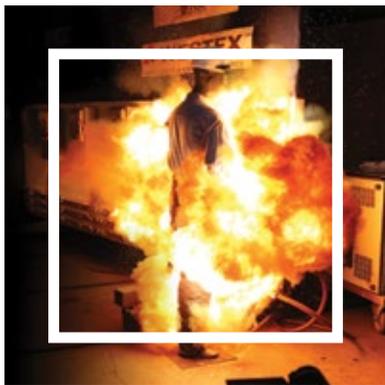


PROVEN HAZARD PROTECTION



Every day, workers in the electrical maintenance, utility, oil and gas, petrochemical and steel industries work in environments that may expose them to hazards that could cause severe or fatal burn injuries. In the event of a momentary electric arc, flash fire, combustible dust or molten metal splash exposure, everyday non-flame resistant work clothes can ignite and will continue to burn even after the source of ignition has been removed. Government reports note that the majority of severe and fatal burn injuries are due to the individual's clothing igniting and continuing to burn, not by the initial exposure itself. Westex by Milliken AR/FR fabrics are designed to self-extinguish, thus reducing or eliminating the burn injury.

For workers exposed to thermal hazards, the Westex® portfolio of AR/FR fabrics provides both the comfort and the protection that employers have come to trust as their first choice in AR/FR clothing.



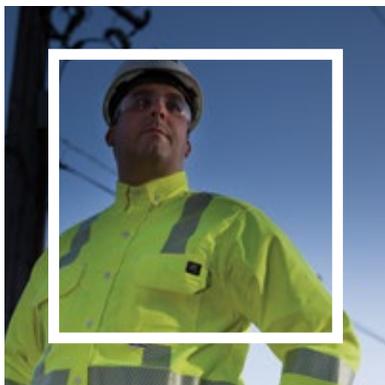
Arc Flash

Arc flashes are electrical explosions or discharges that travel through the air between conductors or from a conductor to ground.

The National Fire Protection Association (NFPA) published the latest edition of the NFPA 70E Standard (Standard for Electrical Safety in the Workplace) in 2018. NFPA 70E states in section 130.7 Personal and Other Protective Equipment (C) (6) Body Protection, "Employees shall wear arc rated clothing wherever there is possible exposure to an electric arc flash above the threshold incident energy level for a second degree burn [1.2 cal/cm² (5 J/cm²).]" Although a voluntary consensus

standard, OSHA considers NFPA 70E a "recognized industry practice" and has levied fines to companies that haven't protected their employees when arc flash accidents have occurred.

The National Electrical Safety Code® (NESC) covers utility workers during the installation, operation or maintenance of electric supply and, communication lines and associated equipment. Employers are required to perform a hazard risk analysis for employees that work on or near energized parts or equipment. If the assessment determines that energies available are over 2 cal/cm², then workers should wear protective clothing (or clothing systems) that have an arc rating equal to or greater than the anticipated level of energy.



Low Visibility

Construction, utility, police, emergency medical services, fire fighters and other workers are routinely exposed to the hazards of low visibility — such as motor vehicles and heavy equipment — while on the job. The ANSI 107 standard sets the performance criteria for high-visibility safety apparel and defines three classes of garments, depending on the level of risk in the work environment. Before the first publication of this standard in 1999, there was no specific guideline for the design and performance of materials for high-visibility safety apparel in the United States. Since then, both private industry and government authorities have recognized the ANSI 107 standard. Westex by Milliken offers multiple high-visibility fabrics certified to ANSI 107.



Flash Fire

Flash fire, as defined by NFPA 2112, is a type of short duration fire that spreads by means of a flame front rapidly moving through a diffused fuel, such as dust, gas or the vapors of an ignitable liquid, without the production of damaging pressure. Due to the presence of flammable materials in the workplace, workers in the oil, gas, chemical and dust producing industries are at higher risk of flash fire exposure than light industrial manufacturing workers. The need for flame resistant clothing as PPE is determined via a workplace hazard analysis as described in NFPA 2113. The use of FR clothing/PPE as the last line of defense will significantly reduce the severity of burn injury in a short duration thermal exposure from fire.

The National Fire Protection Association developed NFPA 2112, an industry certification standard now titled, “Standard on Flame-Resistant Clothing for Protection of Industrial Personnel Against Short Duration Thermal Exposures from Fire.” NFPA 2112 is a certification standard that provides minimum performance criteria and sets clear guidelines for testing on instrumented thermal manikins. The standard calls for short duration thermal exposure from fire testing to be conducted at 3 seconds with a pass/fail criteria of 50% maximum total body burn under ASTM F1930 (Standard Test Method for Evaluation of Flame Resistant Clothing for Protection Against Fire Simulations Using an Instrumented Manikin) testing protocols.



Combustible Dust

Combustible dust, as defined by OSHA, is a “combustible particulate solid that presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations, regardless of particle size or shape.” These combustible particles, which are common in industries like food processing, fossil fuel power generation, paper, plastics, textiles, tobacco, pesticides, pharmaceuticals, woodworking and rubber — to name a few — can lead to devastating explosions, deflagrations and flash fires, which in turn have led to a number of NFPA Dust Standards to minimize and prevent risks. In 2015, NFPA 652 was published as the “umbrella” standard over all the existing industry-specific dust standards. It provides

a set of general requirements for the mitigation of fire and explosion hazards associated with combustible dusts and particulate solids across industries and processes. NFPA 652 also requires workers exposed to a combustible dust hazard to wear FR clothing.



Molten Ferrous Metal Splash

Incidental ferrous metal splash can ignite typical non-flame resistant clothing. The essence of protection from this hazard rests in two critical factors; the fabric must first be flame resistant, and secondly the fabric must be able to shed the molten material from its surface without sticking. When evaluating fabrics for molten metal applications, it is imperative that fabrics be evaluated on site in the form of testing and wear trials. Different work sites handle different alloys, thus a trial with the specific alloy provides the most relevant data.

Note that molten aluminum splash is a different hazard than molten ferrous metal splash. Westex Vinex® is our only product line designed to protect against the unique molten aluminum splash hazard.



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