

# QUESTIONS TO ASK YOUR CUSTOMERS TO HELP ASSIST IN SELECTING PROPER PPE:

FABRIC SELECTION



- How high is the temperature you're working with?
- How heavy is the object being held?
- How long is the exposure time?
- What is the abrasion factor?
- What was being used before and how effective was it?

## FOUNDRY PROTECTION



Foundry applications might require primary and/or secondary protective clothing. Primary clothing should be worn when subjected to significant exposure to molten splash, radiant heat or flame. Secondary protective clothing is designed for continuous wear for work activities with intermittent exposure or where exposure to sparks and flame would be less likely. If primary protective clothing is required, secondary clothing should be worn under it.

### Primary Protection

Aluminized CarbonX®	Aluminized carbon Kevlar®
Aluminized Kevlar®	2 ply Twaron® Micro fiber
Aluminized Rayon®	Carbon Kevlar®

### Secondary Protection

CarbonX®	Oasis™
FR cotton (Indura® or Proban®)	
Vinex® (non ferrous metals)	

## WELDING PROTECTION



We provide welding protection in the form of clothing, blankets and screens. The intensity of welding will help determine the fabrics needed for protection. TIG welding would require less protection than high amp welding. Below are a list of materials that would protect from heavy, medium and light intensity welding.

### Clothing

Leather (heavy)
Tuff Weld® (medium)
FR cotton, Indura® or Proban® (light)

### Blankets

36 oz Silica (heavy)
35 oz Glass cloth (medium)
18 oz Heat cleaned glass (light)

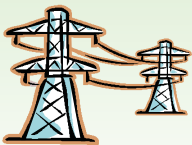
## FLAME PROTECTION



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 exposure itself. Below are a list of flame resistant fabrics that are appropriate to be used as secondary protection from flame. The level of protection typically rests in the fabric weight and composition.

Indura® Ultra Soft® 7 oz, 9 oz or 12 oz	CarbonX® 7.7 oz, 10 oz or 11 oz
Indura® 7 oz, 9 oz or 12 oz	Nomex IIIA® 4.5 oz, 6 oz or 9.5 oz
Proban® 7 oz, 9 oz or 11 oz	

## ARC FLASH PROTECTION



For Arc flash protective clothing we offer fabrics that have been tested to NFPA 70E specifications. Fabric weights and number of layers will dictate the level of protection that a fabric or fabric system offers. The end user must supply us with the level of protection they require. We do not calculate that for them.

Indura® Ultra Soft® (88% cotton, 12% Nylon) 8 cal, 12 cal, 20 cal, 36 cal, 40 cal and 51 cal
Twaron® Micro fiber and CarbonX® 107 cal
Master series 44 cal and 74 cal

## CHEMICAL PROTECTION



We offer a variety of chemical resistant fabrics for aprons, sleeves, clothing and spats. Chemicals react very differently depending on their solution strength and temperature. Sample swatches of our fabrics are available for your own testing.

Hycar®, medium weight nitrile	VCF, Vinyl coated fiberglass
Neoprene, yellow	VCN, Vinyl coated Nylon
PVC, 16 oz green	

## CUT PROTECTION



Our line of cut protective garments include jackets, aprons, sleeves and leggings.

Kevlar® twill 8 oz	Nylon cane mesh
Kevlar® mesh 10 oz	Tubular knit Kevlar®

FABRIC BY INDUSTRY

**Available Fabrics**

Material	Abbreviation	Weight - Oz./Sq. Yd.	Roll Width	Color	Description
Aluminized carbon Kevlar®	<b>ACK</b>	17	40"	AL/blended yel	A combination of carbon and aramid fibers. Good resistance to molten splash. Exceptional abrasion resistance and hot-spot diffusion.
Aluminized CarbonX	<b>ACX10</b>	10 oz.	58"	AL/WHT	Flexir technology provides superior comfort while maintaining a high level of molten splash and radiant heat protection.
Aluminized fiberglass	<b>AF</b>	30	60"	AL/WHT	Heavy weight aluminized glass. Recommended for blankets and pads. Good resistance to molten splash.
Aluminized glass	<b>AG</b>	16	40"	AL/WHT	For use in industrial applications and fire proximity garments. Lightweight and comfortable to wear. Beta fiberglass, satin weave. Gentex #1018.
Aluminized Kevlar® blend	<b>AKV</b>	19	40"	AL/YEL	Aramid and fiberglass blend. Koruspun 1 plain weave. Used in garments where higher temperature than PFR rayon is required. Gentex #1081.
Aluminized Kevlar® twill	<b>AKT</b>	11	40"		Aramid, Kevlar® twill. Cut resistant, lightweight, durable, heat reflective garments and gloves. Meets MIL-C-87076A Spec. Gentex #1091.
Aluminized leather	<b>AL</b>	3.5 oz./sq. ft. (approx.)	—	AL/LEA	Split leather with an aluminized layer bonded to one side. Provides radiant heat protection and excellent wearing characteristics.
Aluminized Nomex®	<b>AN</b>	8.5	40"	AL/WHT	Aramid, Nomex twill. Used in fire proximity garments. Will not support combustion and resists many chemicals. Gentex #1056.
Aluminized polybenzamidazole	<b>APBI</b>	7	40"	AL/TAN	PBI and Kevlar® blend. Knit ripstop. Lightweight and very flexible fabric for radiant heat protection. Gentex #1098.
Aluminized Preox®	<b>APX</b>	18	38"	AL/BLK	Preox herringbone/neoprene backed. High temp, garments, blankets and fire curtains. Very good molten metal splash and radiant heat protection. Gentex #1100-3.
Aluminized rayon (lightweight-herringbone)	<b>AR</b>	15	40"	AL/WHT	PFR rayon, herringbone weave. Good for gloves, garments and blankets for moderate exposure to molten metal splash. Gentex #1006
Aluminized rayon hvy	<b>ARH</b>	19	40"	AL/WHT	Heavier weight PFR rayon, basketweave. Used for gloves, garments and blankets for moderate exposure to molten metal splash. Gentex #1019.
Aluminized Zetex®	<b>AZ</b>	25	40"	AL/WHT	Aluminized Zetex® glass fabric. Recommended for applications requiring heat reflectivity and molten splash resistance.
Blackflex	<b>BF</b>	23	40"/60"/72"	BLK	Premium performance fabric, offering strength, durability, and good heat resistance. Designed for blankets, curtains, and welding screens. Protects from sparks and slag.
Blue denim (FR)	<b>BD1200</b>	11.5 – 12	60"	BLUE	100% cotton denim. Fire resistant. Washable, durable means of protection.
Blue demin (NON-FR)	<b>BD</b>	10	60"	BLUE & BLACK	100% cotton denim. Not-flame retardant. Excellent for aprons and sleeves which require long-lasting performance.
Blue duck (FR) non-durable	<b>BLDK</b>	10	60"	BLUE	100% cotton, treated with flame retardant chemical. Must be re-flameproofed if laundered. For light spark protection.
Brown duck (FR) non-durable	<b>BRDK</b>	14.9	60"	BROWN	Heavyweight 100% cotton, treated with flame retardant chemical. Must be re-flameproofed if laundered. For light spark protection.
Cane nylon mesh (NOT-FR)	<b>CN</b>		45"	BLK OR WHITE	Cane mesh fabric of 100% nylon. Cool, comfortable protection against rough edges and abrasion. For sleeves and aprons.
Carbon Kevlar®	<b>CK</b>	16	40"	BLK/YEL BLEND	Carbon content tames the hot spot problem. Tough Kevlar® for strength and abrasion resistance. Sheds minor molten metal splash.
<b>CarbonX®</b>	<b>CX</b>	10, 11	60"	NAVY/BLACK	Carbon aramid blend. Inherently flame resistant. High limited oxygen index.
Cordura® nylon	<b>CDN</b>	1000 denier	58/60"	ASST.	Cordura® nylon offers good wear performance, lightweight toughness, resistance to abrasion, tears, rot and mildew.
Cotton (100%)	<b>C</b>	7–8	60 pre-shrunk	WHT	100% cotton. Preshrunk. Not flame retardant, used for uniforms and work garments.
Fire-resistant non-durable duck-green	<b>GFRD</b>	14.9	60"	GREEN	Heavyweight 100% cotton. Treated with flame retardant chemical. Must be re-flameproofed if laundered. For light spark protection. Green color.
Fire-resistant non-durable duck	<b>FRD</b>	10	60"	NATL	100% cotton duck. Treated with flame retardant chemical. Must be re-flameproofed if laundered. For light spark protection. Natural color.
Fire-resistant non-durable duck.	<b>FRD-14.9</b>	14.9	36"	NATL	Heavyweight 100% cotton duck. Treated with flame-retardant chemical. Must be re-flameproofed if laundered. For light spark protection. Natural color.
FR9B-Vinex® for aluminum industry	<b>FR9B</b>	8.5	60"	NAVY	Aluminum splash-resistant fabric used for secondary protection. 85% vinyl and 15% polyinosic rayon. Inherently flame resistant.
Generic glass cloth heavy	<b>GGCH</b>	35	40"/60"/72"	WHITE	Glass cloth composed of selected glass fibers, specially woven and treated.
Goldenglass	<b>GLG</b>	24 or 30	40"/60"/72"	GOLD	For the safety apparel and welding industries. For applications up to 900°F. Excellent abrasion resistance and tensile strength.
Green 100% cotton (sateen) FR treated. Ammonia cured.	<b>GR</b>	9.5	60"	GREEN, NAVY, YELLOW, ORANGE, GREY, RED	100% cotton. Flame resistant and washable. Protects against flame exposure, light molten splash and sparks, self-extinguishing. 9 to 9½ oz. per sq. yd. FR-7A chemically treated. (Launderable per MFG instructions.) Offers protection in low heat and light spark applications. Intended to be worn under aluminized clothing when exposure is to high heat or molten splash.
Green ranger twill	<b>GW</b>	11	60"	GREEN, NAVY, YELLOW ORANGE, GREY, RED	(Same description as above-but in 11 oz. wt.) Twill woven cotton. FR-7A chemically-treated, ammonia-cured fabric offers additional thermal protection over the lighter weight cotton (above).
Heat-cleaned glass	<b>HCG</b>	18 oz. (most popular)	40"/60"/72"	TAN	Popular lightweight fiberglass material for blankets and curtains. (26 oz. available.)
HI-VIS (PVC) NOT FR (solid hot orange)	<b>HVP</b>	10	60"	HOT ORANGE	High visibility orange PVC. Solid, not flame retardant.
HI-VIS orange mesh Meets Comm. Std. #181-53	<b>HVM</b>	10	54"	HOT ORANGE	High visibility orange cloth. Mesh, not flame retardant.
Hycar (NOT FR) Nitrile	<b>HY</b>	MED. WT.	40"	BLK, YEL, WHITE	BUNA N coated fabric. Resists water, many acids, oils and solvents. Black, yellow, white. Excellent lightweight, comfortable protection.
Indura®	<b>IND</b>	9, 12	60"	GREEN, NAVY, YELLOW ORANGE, GREY, RED	100% cotton flame-resistant fabric. Guaranteed FR for the life of garment. Used as secondary protective clothing.
Indura® Ultra Soft®	<b>US</b>	7, 9, 12	60"	GREEN, NAVY, KHAKI ORANGE, GREY, RED	88% cotton 12% nylon flame-resistant fabric. Guaranteed FR for the life of garment. Used as secondary clothing.
Kevlar® ballistic	<b>KB</b>	14	50"	YELLOW	Woven ballistic Kevlar® meets U.S. MIL-C-44550 type 11, class 1. Used for cut resistance in safety garments. Not bulletproof. Gentex #1320.

Material	Abbreviation	Weight – Oz./Sq. Yd.	Roll Width	Color	Description	Available Fabrics
Kevlar® blend	<b>KV</b>	22	40"/60"	YELLOW	Aramid wrapped around a fiberglass core. Provides good cut and abrasion resistance. 600°F working temperature and up to 1000°F intermittently.	
Kevlar® blend	<b>SIL-KEV</b>	22	40"	SILVER/YELLOW	Silva-coated aramid blend. Radiates heat and allows contact up to approximately 600°F. Silva-powered 1-side coated.	
Kevlar® felt	<b>KF</b>	6	60"	YELLOW	100% Kevlar® aramid felt. Excellent thermal protection when used as lining in gloves and mitts.	
Kevlar® mesh	<b>KM</b>	9.5 oz.	60"	YELLOW	100% Kevlar® aramid knitted mesh fabric. Provides cut resistance and ventilation for comfort.	
Silicone coated Kevlar®	<b>RSK</b>	10-11 oz.	60"	RED/YELLOW	Silicone-coated Kevlar® twill. Oil and cut resistant. Suitable for clothing. Flame resistant.	
Kevlar® terry	<b>KT</b>	22	40"	YELLOW	Terry-cloth spun from Kevlar® yarn. Provides heat, cut and abrasion protection.	
Kevlar® tubular knit	<b>TKK</b>	11 yds/lb.	3"	YELLOW	100% Kevlar®. Excellent for double-layered sleeving. Lightweight protection from superficial cuts and minor contact burns.	
Kevlar® twill	<b>KTW</b>	8	40"/60"	YELLOW	Lightweight Kevlar® twill. Very cut and abrasion resistant. Will not support combustion and is resistant to most acids.	
<b>Leather</b>						
Bullskin	<b>BSK</b>	5–6 oz.	—	GREY	“Bullskin” chrome leather. Thick leather offers more abrasion resistance and maximum wear.	
Grain leather	<b>GRAIN</b>	3–3.5	—	CREAM	Soft leather, provides flexibility and dexterity where needed as in finger cots and fingerless gloves.	
Pig grain leather	<b>PG</b>	2.5–3	—	CREAM	Soft and light with good abrasion resistance. Used in gloves and mitts.	
Thermal leather	<b>THL</b>	3–3.5	—	BROWN	Selected side-split leather processed by a dry chemical tanning operation. Specially treated to withstand premature hardening and shrinking when in contact with high heat.	
Split leather	<b>CL</b>	3–3.5	—	RUST or GREY	Chrome-tanned leather from genuine split cowhide. First quality and thickness to offer abrasion resistance and maximum wear. Pearl grey or rust color.	
Stiff leather	<b>SL</b>	3–3.5	—	ASST.	Extra-thick cowhide with a firm finished texture. Smooth, rigid leather provides excellent protection from sparks and metal splash when formed into spat and legging flares designed to cover the upper foot area.	
Modaquilt®	<b>MQ10</b>	10.25, 15	59"	GREY	Flame-retardant quilted fabric. Used as a liner in garments for warmth.	
Neoprene coated nylon	<b>NEO</b>	Med. Wt.	60"	YELLOW	Neoprene-coated fabric protects against most oils, acids, alkalis and caustics.	
Needle-punched nomex	<b>NPN</b>	8	60"	OLIVE GREEN	Comfortable, flame-retardant insulation provides an excellent liner for coats, gloves and mittens. Aramid felt.	
Neo-coated needle-punched nomex	<b>NC-NPN</b>	15	60"	BLACK/OLIVE	The neoprene coating creates a moisture-resistant barrier between the garment and the lining, and retards heat penetration. Aramid felt.	
Nomex III-A	<b>NMX</b>	4.5, 6, 9.5	60"	ORANGE, ROYAL BLUE, GREEN & ASSORTED	Nomex® III A aramid is an inherently flame-resistant, anti-static, fiber-blend fabric. Helps protect workers from flame and reduce static electricity.	
Oasis®	<b>ON</b>	7.5, 10, 12	60"	COOL BLUE/NAVY	Blend of fibers including Lenzing FR and nylon. Molten metal splash resistant fabric.	
Olive drab	<b>OD</b>	14.9, 12, 10	36"/48"/60"/72"	OLIVE DRAB	Fire and water-resistant treated cotton duck. Recommended for blankets, curtains, and tarps.	
Polybenzamidazole & Kevlar® blend	<b>PBI-KV</b>	6, 22, 45	40"	TAN	A high performance organic fiber with unique heat and chemical properties. In thermal protective clothing, PBI offers overall protection due to its low heat shrinkage, excellent flexibility even when charred. Lightweight 6 oz. cloth used for garments; 22 oz. fabric used for high heat gloves and mitts; 45 oz. fabric used for higher heats.	
Poly-cotton 65/35	<b>PC</b>	7.75	60"	NAVY/WHITE	65% polyester, 35% cotton blend. Permanent press. Assorted colors and weights.	
PVC on polyester coated both sides (FR)	<b>CHEM</b>	13	60"	GREEN	Polyester with green PVC coating on both sides. (See chemical chart on page 60.)	
Repro wool	<b>RW-32</b>	32	60"	GREY/BLUE	Inherently flame retardant. Will not support combustion. Excellent thermal protection from sparks and minor metal splash. Chemically processed to enhance flame retardancy. Reprocessed wool.	
Rubber	<b>R</b>	.125" thick	36"	BLACK	Neoprene rubber provides excellent protection in legging and spat flares. Resistant to splash and sparks. Rubber will not curl and has excellent abrasion resistance.	
Silica cloth-18 oz.	<b>SC-18</b>	18	36"	TAN	Flexible silica textile with excellent break strength. Fabric does not melt until temperature exceeds 3000°F. Fire, water, and mildew resistant.	
Silica cloth-36 oz.	<b>SC-36</b>	36	36"	TAN	Same as above — heavier weight.	
Salmon cloth	<b>SAL</b>	18	38"/60"		Lightweight, economical. Used for heat and spray shields, wind curtains, and equipment covers.	
Silicone-coated fiberglass	<b>SC-F</b>	30	60"	RUST	Silicone-coated glass cloth for soft pad fabrication. Welding, weathering, oil, and chemical resistant.	
Tubular knit cotton (NOT FR)	<b>TKC</b>	12.5 yds./lb.	3"	NATL	100% cotton-knitted sleeving material. Keeps arms cleaner and provides minimal thermal protection.	
Tuff-Weld	<b>TW</b>	8 oz.	60"	TAN	Lenzing FR and Kevlar blend. Enhanced strength and protection for superior welding garments.	
Twardon Micro Fiber	<b>TWN</b>	10 oz.	60"	YELLOW	100% Para-Aramid with enhanced comfort and stability at high temperatures.	
Vertex®	<b>V</b>	36	40"	BLUE	A coated blue glass textile offering high temperature resistance. Can be used in a variety of applications from safety clothing to insulation and blankets.	
Vinyl-clear (NOT FR)	<b>CV</b>	20 mil.	54"	CLEAR	Clear vinyl, not flame retardant, provides no UV protection. Used for covers and curtains. No UV protection-not for welding.	
Vinyl-clear CFM (UV) (CFM)	<b>CV-FR</b>	20 mil.	54"	CLEAR	Clear vinyl — flame retardant. Meets California Fire Marshall specifications.	
Vinyl-coated fiberglass	<b>VCF</b>	12	48"	GREEN, YELLOW	Good for welding curtains. Resistant to flame, mildew, acid, fungus, oil, and solvents. Not transparent.	
Vinyl-coated nylon (NOT FR)	<b>VCN</b>	18	60"	ASST.	Not flame retardant. Resists mildew, fungus, and oil. Not transparent.	
Vinyl-laminated polyester (CFM)	<b>VLP</b>	13–14 oz.	60"	ASST.	Vinyl-laminated polyester. Meets California Fire Marshall specifications. Not transparent.	
Weldview	<b>WV</b>	13–14 mil.	62"	SMOKE GREY, GREEN, BLUE ORANGE, SILVER, YELLOW	Provides optical protection and spark containment. California Fire Marshall approved. Used in curtains.	
Wool lining	<b>OWL</b>	11	36" tubular	GREY	Wool lining that provides good thermal protection when used in gloves and mittens.	
Zetex®	<b>Z</b>	35	60"	WHITE	Made from a highly textured form of silica, with one side specially coated for better molten splash resistance. Continuous temperatures up to 1000°F (for clothing and handwear).	
Zetex Plus®	<b>ZP</b>	35	60"	TAN	High temperature fabric. Provides excellent resistance to flames, sparks, and molten splash. Highly textured silica-based fabric processed to withstand continuous temperatures up to 1800°F.	
Zirpro™ wool	<b>ZW-26</b>	26	60"	NAVY & ORANGE	100% wool. Zirpro™ treated. Highly effective as a liner for coats, gloves, and mittens.	