

**DUPONT™  
NOMEX®**

# IIIA Inherent Flame Resistance, Durability and Lightweight Breathability



**Nomex**  
NEVER QUIT.™

DuPont™ Nomex® IIIA fiber is engineered by DuPont scientists with the goal of giving workers in the oil & gas, chemical and general manufacturing industries valuable extra seconds of protection to escape the intense heat and flames of on-the-job thermal hazards such as flash fires and pool fires. What's more, fabric made of Nomex® IIIA is extremely durable and helps provide the added benefit of lightweight protection, helping garments to keep workers safe and feeling cooler and drier.

## Advantages of fabric made of Nomex® IIIA

- **Inherent protection.** The outstanding thermal protection of Nomex® IIIA is inherent to the fiber so, unlike flame-retardant treatment (FRT) applied to the surface of cotton or cotton blends, the flame-resistant (FR) protection of Nomex® IIIA fabric cannot be washed out or worn away.
- **Durability and cost effectiveness.** Fabric made of Nomex® IIIA is extremely durable, exhibiting superior abrasion and tear resistance compared to FRT cotton and FRT cotton/nylon blends—even when the FRT fabrics are made of heavier weight constructions. This results in the industry's longest average wear life for garments made of Nomex® IIIA blend when compared with similar-weight thermal protective clothing.
- **Lightweight breathability.** Garments made of Nomex® IIIA have manufacturer-specified weights as low as 4.5 oz/yd<sup>2</sup> while meeting applicable standards, such as NFPA 2112. By contrast, FRT cotton or cotton/nylon garments that meet NFPA 2112 requirements typically weigh at least 7 oz/yd<sup>2</sup>.
- **Reduced heat stress.** Because Nomex® IIIA is breathable and doesn't hold onto moisture, it enables air flow to transfer heat away from the body, helping the wearer to feel cooler for longer.
- **Professional appearance.** Fabric made of Nomex® IIIA is easy to clean, exhibits low shrinkage, features excellent laundry colorfastness and rarely needs pressing, so garments continue to look like new after repeated washings.

## Typical physical properties

Property	Standard	Units/Description	Nomex® IIIA 6.0 oz/yd <sup>2</sup>	Nomex® IIIA 4.5 oz/yd <sup>2</sup>
Basis weight	ASTM D3776	oz/yd <sup>2</sup>	6.0	4.5
Tensile strength (Grab test)	ASTM D5034	Warp (lbf)	225	141
		Weft (lbf)	161	104
Elmendorf tear	ASTM D1424	Warp (lbf)	15.6	10.6
		Weft (lbf)	10.1	8.4
Vertical flame	ASTM D6413	Afterflame (secs)	<2	<2
		Char length (in.)	<4	<4
		Melting or dripping	No	No
Thermal protective performance (TPP)	NFPA 1971 Section 8.7	Spaced (cal/cm <sup>2</sup> )	13.1	12.2
		Contact (cal/cm <sup>2</sup> )	6.2	5.7
Shrinkage after 5 home laundering cycles	AATCC 135	Warp (%)	<3	<3
		Weft (%)	<3	<3
Thermal shrinkage	NFPA 2112 Section 8.4	Warp (%)	<5	<5
		Weft (%)	<5	<5
Arc rating	ASTM F1959	cal/cm <sup>2</sup>	6.4 (Category 1)	4.9 (Category 1)
Thermal manikin	ASTM F1930	TPBI (%)	20.2	38.3

## Recommended USE and CARE for fabrics made of DuPont™ Nomex® IIIA

Single-layer fabrics made of Nomex® IIIA are not suitable for protection against molten metal splash, hot liquids or steam. Do not wear alone for structural or proximity firefighting. Do not use alone for chemical protection. Follow all warnings and use and care instructions included in the garment manufacturer's label.

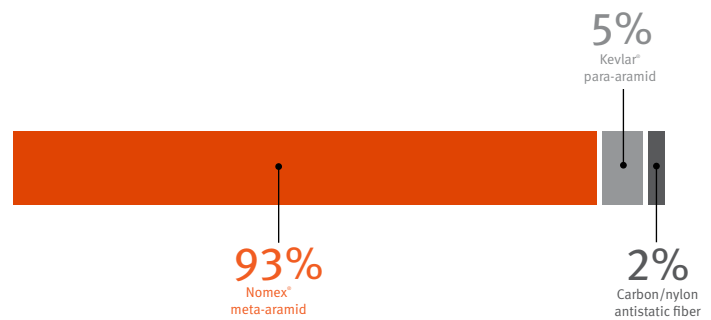
Flammable contaminants will reduce the thermal protection of any FR fabrics and the garments made from them. Wash all garments made of Nomex® IIIA frequently to ensure that no grease, oil, soil or other flammable contaminants are present when the garment is worn.

Fabrics made of Nomex® IIIA exhibit very good resistance to a broad range of chemicals and are highly resistant to most hydrocarbons and many other organic solvents. Resistance to chemicals that exist in industrial work areas enhances the durability of the garment while also enabling the use of organic solvents to clean the garment and remove flammable contaminants without affecting garment wear life.

### For home laundering:

- Wash new garments before wearing to remove fabric processing aids and finishes.
- Launder garments separately from non-flame-resistant clothing so FR garments are not contaminated with flammable lint.
- Wash dark and light colors separately.
- Secure all zippers and snaps before washing and drying.
- Pretreat stains.
- Machine-wash in hot water (maximum 140°F/60°C) with a heavy-duty liquid detergent.
- Do not use chlorine bleach or detergents containing chlorine bleach because these can cause color fading. Only oxygen-based bleach should be used on clothing made of Nomex®.
- Tumble-dry on low heat (maximum 160°F/71°C).
- Do not over-dry. Remove promptly to minimize wrinkles.
- Do not use fabric softeners or dryer sheets. Other laundry additives should not be used if they are flammable.
- Removal of grease or oil stains may require dry cleaning.
- Do not store or line-dry fabrics or garments made of Nomex® in sunlight.

## Fabric composition



## Colorfastness

Fabrics made of Nomex® IIIA are available in a range of colors and styles. Due to the color change of fibers after extended exposure to ultraviolet (UV) light, not all colors may be appropriate for all applications. The FR properties of the fabrics are not affected by UV exposure. The change in color will vary according to the color chosen. If the fabrics will be subjected to significant amounts of UV light exposure (sunlight or artificial), it may be desirable to select lighter colors less likely to be affected. Garments made of Nomex® IIIA should be stored so that they are protected from unnecessary exposure to UV light.

## Fabrics made of Nomex® IIIA have been certified to the following industry FR protective clothing standards

- NFPA 2112 *Standard on Flame-Resistant Clothing for Protection of Industrial Personnel Against Short-Duration Thermal Exposures from Fire*
- NFPA 70E® *Standard for Electrical Safety in the Workplace*®
- ASTM F1506 *Standard Performance Specification for Flame Resistant and Electric Arc Rated Protective Clothing Worn by Workers Exposed to Flames and Electric Arcs*
- NFPA 1975 *Standard on Emergency Services Work Clothing Elements*

## Take the next step and choose Nomex® IIIA

Provide your workforce with the inherent FR protection, durability and lightweight breathability they deserve. Contact us at: [nomexinfo@dupont.com](mailto:nomexinfo@dupont.com)

[nomex.com/knowledge](http://nomex.com/knowledge)

Product safety information is available upon request.

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