

A Comparison of How Garments Made of DuPont™ Nomex® Stack up Against the Competition



Dedication to building the tools that help give industrial workers the best protection for the hazards they face every day.

40 Plus Years of Protecting Against All Types of Fires

DuPont™ Nomex® fiber has set standards in fire protection around the world for over 40 years. Workers across the manufacturing, chemical and refinery industries depend on its thermal protection to help keep them safe. Race car drivers, jet fighter pilots and firefighters know it by name.

Today the innovation continues, Nomex® products are engineered to deliver protection, durability and more comfortable, cost-effective solutions to help you safely escape from fire hazards of various intensities and duration.

Fire is Unpredictable. DuPont™ Nomex® is not.

Let's face it, you can never know with certainty when a fire will spark, how hot it will burn, when it will spread or how long you'll be in danger. Because fire is such a wild card, DuPont™ Nomex® is your best bet. Nomex® fiber is proven and predictable.

There are good reasons to be prepared with Nomex®. According to the Bureau of Labor Statistics, 109 workers died from fires in 2010 alone. OSHA reports that more than 5,000 are injured in explosions and fires on the job each year. There's no way to put a number on the pain and suffering that serious burns and injuries cause to workers and their families.



The miracles of science™

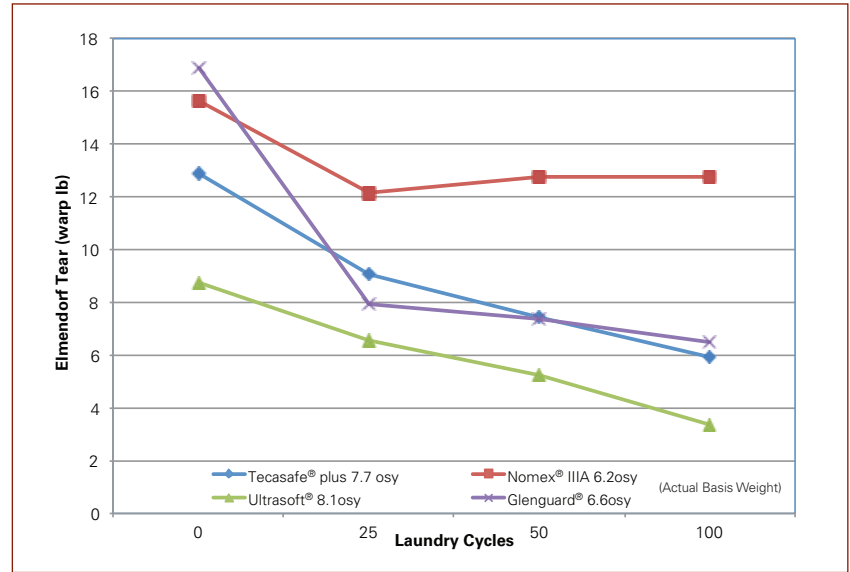
Durability

Unlike other materials, flame resistant properties are born into the Nomex® fiber and never wash/wear out. So you can make a tougher, more durable fabric with a longer lifespan and, ultimately, a better value.

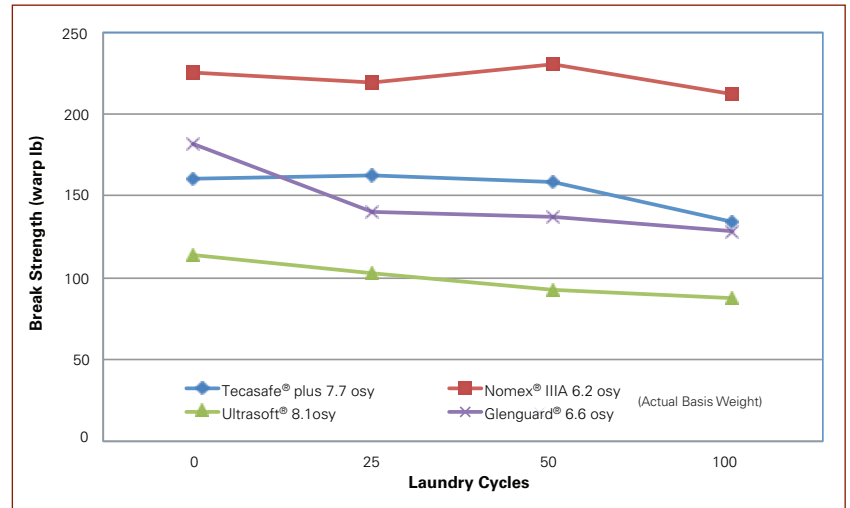
Garments made of Nomex® help provide outstanding wear life and can contribute to bottom-line savings by being:

- Extremely durable, and resists abrasions and tears.
- Longer lasting than other protective fabrics, including FRT cotton, providing excellent value.

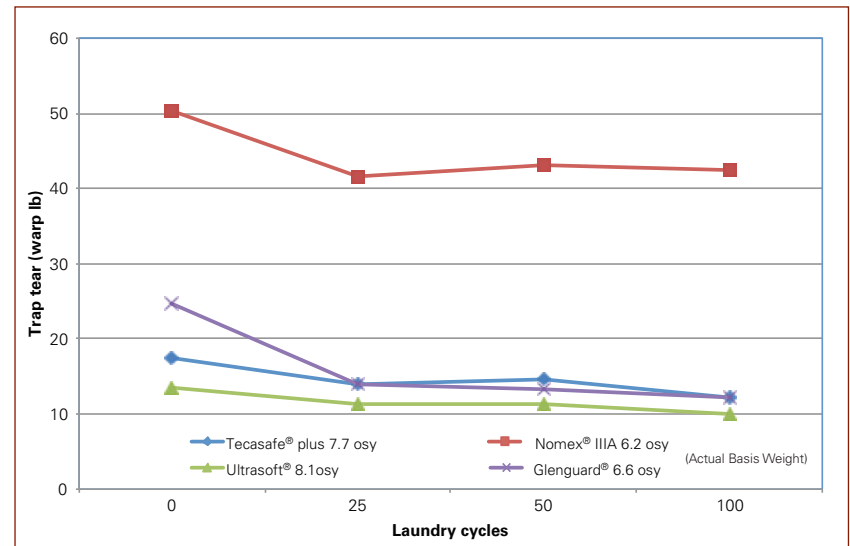
Elmendorf Tear



Break Strength



Trap Tear





Comfort

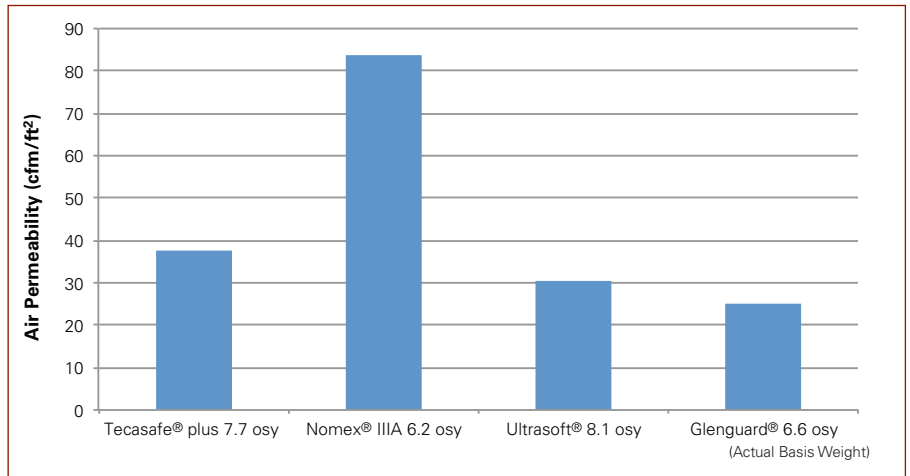
Comfort and fit are also an essential part of safety. In collaboration with manufacturers and mills, DuPont strives to help them make significant fabric improvements — providing lighter weights, wicking finishes, and breathability.

Garments made of Nomex® IIIA can help garments to be:

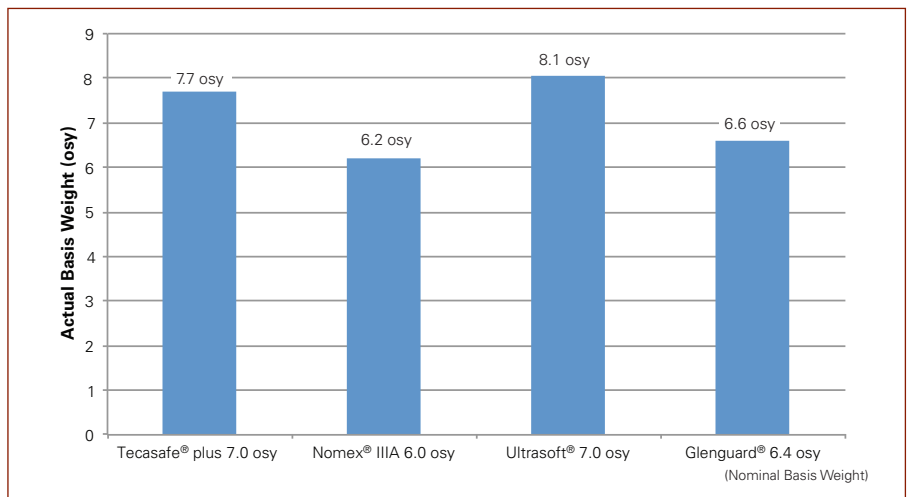
- Lightweight, highly breathable and designed to help wearers feel cool and dry.
- Available in a variety of fabric weights to suit any climate.
- More comfortable to wear by reducing static cling.

**DuPont™ Nomex® —
Helping Keep Workers Safe.**

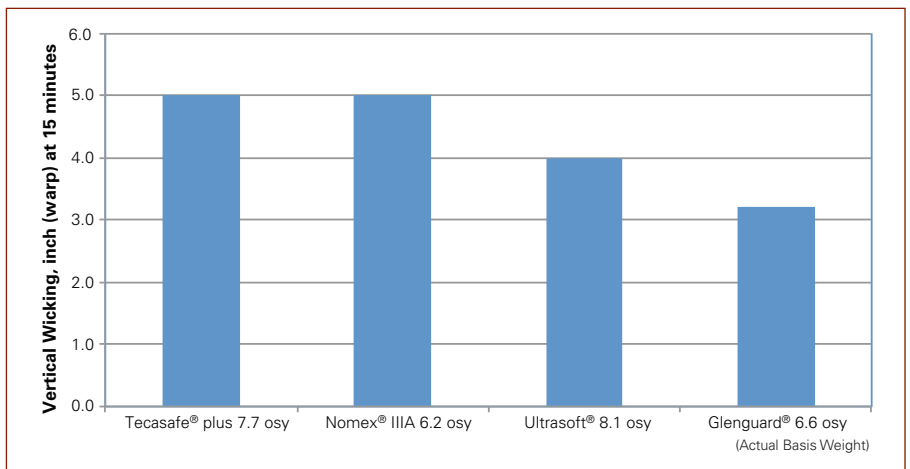
Air Permeability (Fabric)



Actual Basis Weight (Fabric)



Vertical Wicking (Fabric)



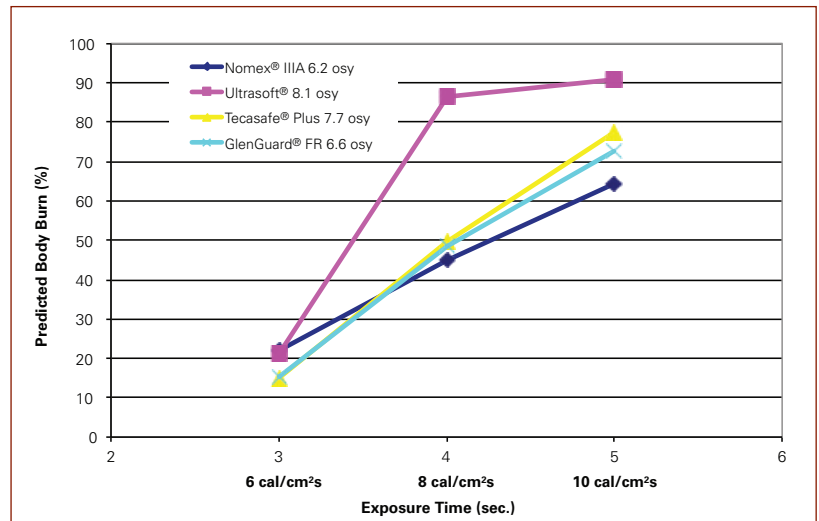
Protection

All fires are different and not exactly 3 seconds or 2 cal/cm²s (which is only the minimum NFPA 2112 testing condition). Total heat exposure from real world fires can vary greatly, so it's important to understand the difference in exposure time and energy and ensure your workers are protected. DuPont™ Nomex® thermal technology can help provide you valuable seconds to escape from fire hazards. Its effectiveness has been proven time and time again in documented laboratories, field tests and real life fires.

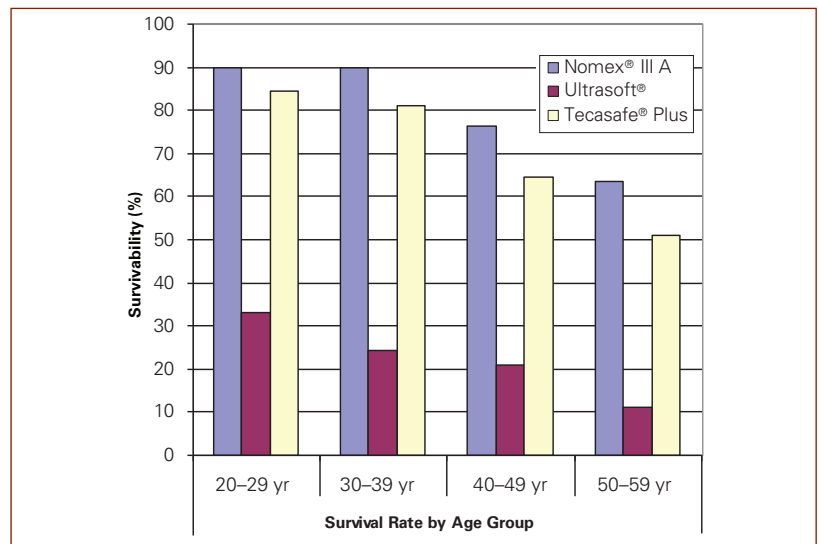
You can see from the chart that at 3 seconds, body burn varies by 15–22%, which is highly dependent on fabric weight.

However, at just 1 second more, body burn equals 45–88%, but survivability is 11–90% depending on FR fabric choice and age group — survivability now varies by 80%.

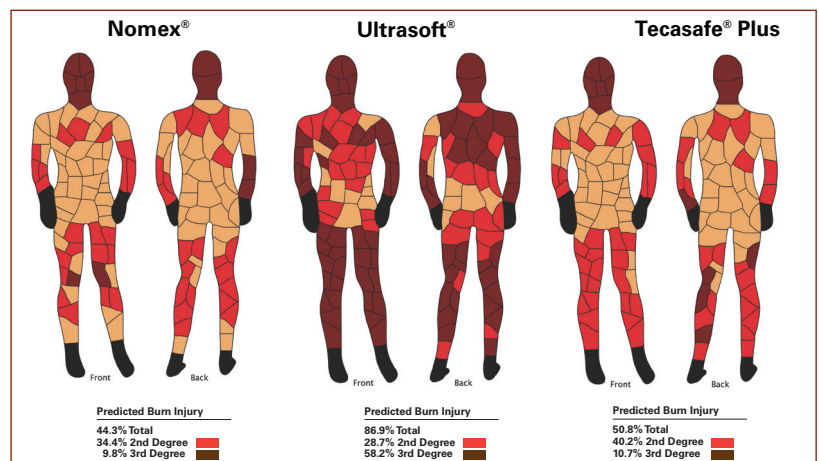
Body Burn



Survivability — 4 sec exposure time (8 cal/cm²s)*



Body Burn Prediction Comparison — 4 sec exposure time (8 cal/cm²s)



*American Burn Association, National Burn Repository® 2011. All Rights Reserved Worldwide.

Product Comparison (Fabric)

	DuPont™ Nomex® IIIA	Ultrasoft®	Tecasafe® Plus	Glenguard®
Basis Weight				
Nominal Basis Weight, oz/yd ²	6.0	7.0	7.0	6.4
Actual Basis Weight, oz/yd ²	6.2	8.1	7.7	6.6
Durability				
Elmendorf Tear, lb, (warp/fill)	15.6/10.1	8.8/9.6	12.9/9.6	16.9/11.8
Trap Tear, lb, (warp/fill)	50.4/23.3	13.6/7.9	17.4/8.6	24.6/16.2
Tabor Abrasion, cycles, (CS-10 [1000 g])	581	550	431	434
Grab Strength, lb (warp/fill) (initial)	225.8/160.6	114/74	160.9/100.2	182.3/140.3
Comfort				
Vertical Wicking, inch (warp/fill) at 15 minutes	5.0/5.0	4.0/3.5	5.0/4.9	3.2/3.2
Air Permeability, cfm/ft ²	83.6	30.5	37.4	25.2
Laundry Shrinkage, % (warp/fill) (100x)	3.55/4.44	5.11/0	4.22/5.0	7.0/4.33
Thermal Protection				
Vertical Flame Char Length, inch (warp/fill)	3.1/3.1	3.9/3.82	3.7/3.2	2.3/2.8
Exposure Energy				
Instrumented Thermal Mannikin (% total predicted body burn)				
6 cal/cm ² (3 sec at 2 cal/cm ² sec)	21.9	21.0	15.0	15.3
8 cal/cm ² (4 sec at 2 cal/cm ² sec)	44.8	86.3	49.8	48.6
10 cal/cm ² (5 sec at 2 cal/cm ² sec)	64.5	91.0*	77.0	73.0



Working Together to Help Keep Our Workers and Yours Safer

There's more in every fiber of Nomex® than superior, inherent protection. There's a commitment to collaboration. Partnerships with world class manufacturers. Collaborations with organizations and associations that set the safety standards. And a dedication to building the tools that help give workers the best protection for the hazards they face every day. DuPont™ Nomex® fiber — weaving together 40 years of safety and predictability.



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