

# Making protection more than a layer

*Materializing ambitions*



**TEIJIN ARAMID**





**For over 50 years, Teijin Aramid has partnered with textile producers and garment manufacturers to produce the best protective gear for firefighters' health and safety. From turnout gear to wildland apparel hoods and station wear, our aramid fibers Teijinconex®, Twaron® and Technora® deliver inherently flame-resistant comfort, without sacrificing protection or performance, for millions of firefighters across the world.**

### Protecting the protectors

With our long history of expertise in flame resistant fibers, Teijin Aramid supports innovative fabric producers and apparel manufacturers to provide global solutions for firefighters in demanding applications.

Garments constructed with our aramids provide unrivaled resistance to fire and chemicals coupled with superior durability compared to traditional garments in the same class. Our Twaron®, Teijinconex® and Technora® fibers are manufactured with inherent protection against flame, flashfire, flashover and electric arc hazards in a wide range of conditions. This results in flame-resistant, self-extinguishing

fibers that can be blended into lightweight fabrics for firefighters all over the world.

Our fibers meet – or exceed – global industry standards for heat and thermal protective performance.

The advanced thermal protective qualities of Twaron®, Teijinconex®, Technora® are inherent in the fibers themselves. They don't wear or wash out, so their unique protective properties are not affected by repeated laundering, UV exposure or other environmental conditions.

## Key benefits of our aramids

- Inherent heat and flame resistance
- Will not melt and drip
- Superior colorfastness
- Vibrant colors to fit end user needs
- Outstanding thermal stability at high temperatures
- Outstanding durability, even after prolonged heat and flame exposure and washing
- Exceptional strength





**Key benefits of Teijinconex® dope-dyed fibers**

- Dope-dyed range achieves 75% of Pantone colors
- Reduced water consumption to produce rich colors
- Vibrant colors that enhance visibility in high-risk environments

**Safer in color**

Visibility is crucial for safety, as is the need for all firefighters to look uniform and professional, regardless of how long they've been using their garment. With our new dope-dyed aramids, we are now able to replicate approximately 75% of the Pantone color range. Manufacturers can create protective clothing that retains its appearance without compromising on safety.

Most importantly, garments made with these aramid fibers maintain their vibrant colors for longer, providing fire department uniformity and professionalism. All Teijinconex® fiber types are well suited for industrial laundering, the decontamination process, and extended washing cycles, maintaining their original color for longer. Teijinconex® colors are uniform, ensuring all garments are consistent in shade no matter how old.

**Trusted performance in personal protection****Flexible portfolio for lightweight solutions**

Twaron®, Teijinconex® and Technora® provide exceptional protection from on-the-job injuries associated with flash fire, arc flash and other thermal exposures. Protective apparel made using these remarkable fibers are lightweight, strong and can be worn for extended periods of time during demanding physical activity. Garments containing our fiber blends deliver maximum protection and superior durability when compared to traditional garments in the same class.

**Increased durability**

In addition to the superior thermal protective performance of the meta-aramid, Teijinconex®, our para-aramids, Technora® and Twaron®, are known to be some of the strongest fibers in the world, retaining their exceptional strength even in extreme environments.

**Extra value with blends**

Blending Teijinconex® meta-aramid with Twaron® and Technora® para-aramid creates distinct advantages over fabrics made from conventional fibers like cotton, polyester and modacrylic. Garments remain service-worthy for longer and provide better value over time.





## How does Teijin Aramid fiber compare to other fibers

		Teijinconex®	Twaron®	Technora®	UHMWPE	Carbon	PBI	Oxidized PAN	Steel Wire*
<b>Tenacity</b>	N/tex	0.37 - 0.62	1.7 - 2.6	2.2 - 2.6	1.7 - 4.2	1.9 - 3.5	0.27	0.15 - 0.20	.45
<b>Elongation at Break</b>	%	28 - 45	2 - 5	3 - 5	1.5 - 8.0	0.7 - 2.1	30	15 - 23	2.2
<b>Decomposition</b>	°C °F	> 400 > 752	500 932	500 932	-	3,700 6,700	550 1,022	300 572	-
<b>Melting Temperature</b>	°C °F	-	-	-	145 293	-	-	-	> 1,400 > 2,600
<b>Limiting Oxygen Index (LOI)</b>	%	27-38	29 - 40	25 - 40	17 - 18	-	41	50 - 55	-

\*Ultra Tensile Steel belt wire (12500 dtex)

### Making the future sustainable

Safety from heat and flame, durability, visibility and comfort. These are the key properties of protective clothing. But firefighters know that protection is more than a layer. It's also about making the safest decisions – for yourself and for your community. We aim to support protectors to choose the right materials for their protective apparel. That's why we're looking to start a conversation – not only as an opportunity to share our materials expertise – but also to engage with our partners and end-users on the challenges we face in protecting people and the planet, including making the textile industry more sustainable and circular.

### Get in touch with us – let's make a difference together

If you would like to know more about the value that Teijinconex®, Twaron® and Technora® offer, or additional technical possibilities & services we offer, contact us at [personalprotection@teijinaramid.com](mailto:personalprotection@teijinaramid.com)

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