If you’re providing energy to millions of people, you better be sure.
Cost reduction, reliability and safety

The energy industry is taking on a tremendous challenge: providing affordable energy to billions of people. At the same time, we need to decrease the impact of these activities on our planet. At Teijin Aramid, we believe we can make a difference by supporting energy companies. Specifically, our product portfolio offers one of the lightest, strongest, and most durable materials available. With over 40 years’ experience enabling the most challenging applications, Twaron® and Technora® empower companies to reach their most ambitious goals, while helping them to lower their environmental impact.

Teijin Aramid is your partner for the future. With decades of experience, we work closely with energy leaders, developing applications that deliver outstanding levels of performance at all times. Teijin Aramid’s Twaron® and Technora® para-aramid fibers – with a unique set of properties including high strength, a high-tensile modulus, and great chemical resistance – are perfectly suited to take on the challenges of the energy industry.

Because whether it’s onshore or offshore, you have to be sure that – no matter what happens – your people are safe and your equipment won’t let you down.

Twaron® and Technora® offer:

- High strength-to-weight ratio
- The highest modulus available in the market
- Industry-leading chemical resistance
- Excellent heat durability
- Recyclability

Twaron® and Technora® can help you to:

- Reduce costs
- Tackle corrosion
- Reduce installation time
- Create strong, lightweight products
- Deliver excellent impact resistance
- Increase product lifetime and improve durability
- Enable product recycling
How are Twaron® and Technora® used?

**Thermoplastic Pipes (RTPs)**

**Corrosion-free and fast installation**

In the harshest environments, reinforced thermoplastic pipes (or flexible composite pipes) play a critical role, transporting oil, (hydrogen) gas, and water at key locations around the world. Aramid-reinforced thermoplastic pipes are corrosion-free and provide fast and low-cost installation as well as easy transportation on reels. This helps you to reduce the cost of your operations. Our industry-leading aramid fibers, Twaron® and Technora®, are lightweight, flexible, and corrosion-free. They can withstand high operating temperatures and pressures, as well as aggressive chemicals – enabling reinforced thermoplastic pipes that resist, endure, and perform better for longer.

**Umbilicals**

**Lighter and more durable**

Today’s offshore industry demands more from its umbilical solutions. You have to be sure that your umbilicals are keeping you powered and in control, no matter what. Twaron® and Technora® are used as braided reinforcement layers for thermoplastic hoses. We work with our partners to extensively test hydraulic hoses on burst pressure and impulse fatigue. With their high strength-to-weight ratio, excellent temperature, chemical, fatigue resistance and high tensile modulus, Twaron® and Technora® are the ideal reinforcement solution for umbilicals.
Higher pressures, higher temperatures, and sour conditions

When you're far out at sea, reaching the deepest depths of the ocean, top product performance is not 'nice to have' – it's the only way. Across the seas, flowlines must operate at the highest temperatures and pressures and under the harshest chemical conditions – delivering long-term performance and reliability, without compromise. Twaron® and Technora® ABC tapes support your flexible pipes, preventing bird caging, deformation and leakages – for full confidence, every time.

Achieving the best is non-negotiable.

Ropes, cables, straps and slings play a critical role in driving operational performance in the energy industry. So do protective clothing, industrial flame-protection coatings, and pressure vessels for gas transportation. Across the energy industry and across the world, we've been partnering with key product manufacturers. From non-corrosive synthetic ropes that are safer and reduce energy consumption, to fire protection coatings, we're successfully improving performance and safety. Because, for us, achieving the best is non-negotiable.
Our products

Low weight, high strength, high modulus
True strength comes from within. Twaron® and Technora® are no exception. Our unique manufacturing process enables a material structure that offers extraordinary strength at low weight. These properties enable you to design lightweight, strong and durable products, helping you to economize in your projects.

Resisting high temperatures over time
High temperatures are common in the energy industry. Twaron® and Technora® have no melting point and will only start to decompose at 500°C (932°F). Twaron® and Technora® are excellent at maintaining their strength. Technora® steps up the game, maintaining its long-term properties at even higher temperatures.

*Measurements lie within shaded area (95% prediction interval). Line represents trendline of actual measurements. Dotted line represents the extrapolation. For more information, please refer to infonote IND 37436.*
Reliability in sour conditions

The energy industry often operates in harsh environments and you have to be sure that your products are up to the test. The high crystallinity and strong intermolecular interactions in Twaron® and Technora® prevent chemicals from penetrating the polymer structure. Technora®, in particular, steps up the game in the aramid industry. Our unique manufacturing process enables a material structure that offers the best chemical resistance.

Retained strength (%)

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Twaron® resistance to chemical attack, exposure time: three months in water at room temperature.
Our capabilities

Worldwide, locally engaged with you
Teijin is the global leader in high-performance materials, with more than 19,000 employees. With a history of more than 100 years, Teijin has built the widest portfolio of high-performance fibers, including aramid fiber, carbon fiber, and ultra-high-molecular-weight polyethylene (UHMWPE).

Our 1,800 employees in strategic locations serve energy and oil & gas customers around the world – so we can help whenever you need support, no matter where you are.

Dedicated facilities, dedicated people
We have been involved in the energy industry for several decades – yet we never stop looking to improve ourselves and our technology. Here, our researchers can test, pilot, and optimize our offering for the energy industry. This makes us a conversation partner to our customers, helping you to reduce your risk and speed up your time-to-market. Our many facilities, including our dedicated Mayer braiding machine, allow us to develop and test the latest innovations quickly and efficiently – keeping us one step ahead, always.

Driving sustainability, the right way
With our world facing era-defining challenges like climate change, the need to implement sustainability within the energy industry has never been greater. Not only is the industry facing growing scrutiny of its impact on the environment, but regulatory authorities are continuously increasing safety demands and operational requisites. Twaron® and Technora® are future-proof solutions: by raising functional performance and reducing the total CO₂ impact of oil and gas operations, our materials will keep you ahead of developments for years to come. These are not just words. Our commitment is to reduce our CO₂ emissions by 49% by 2030 (compared with 1990) and to become completely carbon-neutral by 2050. To achieve this, among other efforts, we dedicate up to 20% of our R&D budget to sustainability-related projects and are developing a completely recycled-based Twaron® filament yarn. Did you know that we already recycle our materials in large quantities for use in brake pads?
A certified proposition

Staying ahead of standards is integral to our way of working. Twaron® and Technora® are certified under several Quality, Health, Safety & Environment (QHSE) standards, including ISO 9001 (2015), ISO 14001 (2015), OHSAS 18001, EcoVadis Gold Recognition level (2018), and OEKO-TEX statements such as REACH (2018). See full details of our certificates and statements at www.teijinaramid.com/certificates.
At Teijin Aramid, everything we do is guided by our ambition to shape a better future for generations to come. Day after day, we move forward, continuously improving our processes, our technology and ourselves. As market leaders, we drive progress through collaboration and set new standards for high performance. We connect with our customers at every level, wherever they are in the world. Because we believe that, together, we can be something bigger. Together, we can challenge conformity.

From automotive and oil & gas to civil engineering, ballistic protection and beyond, our products are empowering excellence in diverse markets and applications around the globe. By enabling lighter, stronger and more resistant materials. And by taking durability, protection, and efficiency to new levels. Whether you choose Twaron®, Teijinconex®, Technora® or Endumax®, our high-performance materials are an enduring guarantee of reliability. You can be sure of that.