



Turning to new technologies: Aramid for mooring lines

Twaron® and Technora® for mooring lines

Achieving operational reliability continues to be a difficult challenge for the maritime industry, with mechanical failures causing production downtime and putting workers at risk. In fact, as the shipping volumes handled by the maritime industry continue to swell, and the physical sizes of the ships involved in the industry continue to increase, the technical mooring challenges faced by the industry are becoming greater. To meet these challenges and improve operational reliability, the maritime industry is turning to new technologies, including aramid materials.

Teijin Aramid has more than two decades of experience in developing innovative aramid materials that strengthen and improve products for use in the maritime industry. In particular, mooring lines (for both static and semi-static applications) that integrate Teijin Aramid's materials Twaron and Technora offer improved performance standards and longer lifetimes.

Key benefits when using our aramid

- Low weight
- High strength
- High thermal stability
- Improved durability
- Reduced risk of injury
- Reduced maintenance



Strong and light

Twaron and Technora have unique physical properties, including high tenacity, high strength and high-tensile modulus. Weight for weight, Twaron is five times stronger than steel, while Technora is even stronger. Both materials have a high creep resistance and are perfectly suited for reinforcing mooring lines, enabling the maritime industry to use stronger mooring lines without increasing the weight. The lower weight and easier handling of aramid mooring lines compared to traditional steel lines can improve efficiency on board ships or in harbors.

Improved sustainability

Mooring lines made with Twaron and Technora are environmentally friendly and offer a sustainable solution to the maritime industry. Both these materials ensure longer life cycles, as their physical properties do not diminish with time, use or exposure to elevated temperatures, unlike with the traditional HMPE lines. As a result, Twaron- and Technora-based mooring lines stay in service longer, and limit the impact of the maritime industry on the environment. Unlike any other high-performance fiber, Twaron can be recycled for use in other applications. This means that there is no need for landfill, burning or mid-ocean discarding, and old mooring lines can be exchanged for scrap value.

Chemical and heat resistance

Both Twaron and Technora retain their special physical properties even in the most challenging industrial conditions. It is known that internal temperatures of mooring ropes can rise to temperatures well above ambient temperatures. Both Twaron and Technora keep their performance even at these elevated temperatures. In addition, both these materials are resistant to chemical hazards, and will maintain their high-performance properties when exposed to corrosive materials. Mooring lines made with Twaron and Technora are among the most resistant available to the maritime industry.

UV-light resistance

It is a common misconception that aramid ropes are negatively affected by outdoor exposure and UV light. In fact, UV light will only ever minimally affect the outside surface of the mooring line, penetrating to a half a filament thickness, and will not affect the inner filaments at all, meaning that mooring lines that effectively integrate Twaron and Technora will hardly be affected by UV light.

Finishing touch

Teijin Aramid is always working with its partners to offer tailor-made solutions for special applications. In particular, both Twaron and Technora can be optimized for mooring line applications by applying a range of surface treatments, including a marine finish. This special finish allows for long-term use in wet conditions, providing the maritime industry with mooring lines of unparalleled performance.



For more information, please e-mail us at ropescables@teijinaramid.com or visit www.teijinaramid.com.

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