

TEIJIN

"North Sails switched from Dupont Kevlar to Twaron® in 1998, and we've never looked back."

Bill Pearson, Technical Director of North Sails

Twaron®

Aramids by Teijin

Be sure.

When performance counts, the choice is clear!

When the 2014-2015 Volvo Ocean Race set off from the port of Alicante on October 4, every sail on every boat had been manufactured by North Sails and contained Teijin Aramid's Twaron® fiber.

Founded by Olympic gold medalist Lowell North in 1956, North Sails is now the world's largest sailmaker, with offices in 68 countries and annual turnover of \$90 million. From 1998, they have been using a range of Teijin Aramid's lightweight, low-stretch aramids, most recently Twaron® Black. Providing a good balance between modulus and durability, Twaron® keeps proving its diversity of application and relevance to the sports industry.

The Volvo Ocean Race

Legend has it that the prestigious Volvo Ocean Race was thought up over a beer in a smoky Portsmouth pub in 1971. Since then, the yacht competition has grown into a famous event, attracting worldwide media coverage and multimillion dollar sponsorship. Held every three years, the race involves months of gale-force winds, mountainous seas and sleep deprivation. For four decades, these extreme challenges have brought the race to the attention of the scientific and industrial community. For the 2014-2015 edition of the race, each of the six one-design Volvo Ocean 65 yachts racing around the world has twelve sails on board, plus another seven in storage. All these sails have been manufactured according to North Sails' 3Di process and use pre-impregnated tapes made of black Twaron® aramid and clear

Dyneema SK75 fibers. This particular blend of fiber provides the optimal durability and reliability required to complete the 38,739-nautical-mile race.

Lighter means faster

Over the years, developments in the high-performance fiber industry, including the development of Twaron®, have significantly improved racing conditions. "The advanced technology used in sails today makes the vessels more manageable and improves their performance," explains Bill Pearson, Technical Director of North Sails. "The weight is especially important. Lighter sails lower a boat's center of



Key benefits of Twaron® for sails:

- > Superior strength-to-weight properties
- > Excellent stiffness
- > High UV resistance
- > Easy integration into sail manufacturing process

Twaron®

gravity, reducing heeling and improving speed. And, of course, lighter sails also mean sailors need to use less energy to trim, furl, and stow. In addition, the lower stretch achieved by using the Twaron® fiber allows sails to maintain their shape over a broader wind range and can dramatically improve upwind performance."

"Twaron® allows sails to maintain their shape over a broader wind range and can dramatically improve upwind performance."

Reliable supply and proactive collaboration

Bill goes on to explain that it is not only the technical advantages of using Twaron® that make this product so appealing. "North Sails switched from Dupont Kevlar to Twaron® in 1998, and we've never looked back," he says. "Twaron® has been a reliable mainstay for our sails for a long time. The service delivered by Teijin Aramid has been excellent over the years, and there have rarely been any problems or bottlenecks in production. I also very much appreciate the way



Teijin Aramid is happy to think along with us and develop new products together with us. A good example is the production of Twaron® Black, which was developed specifically on our request, because black is much more fashionable than yellow in our business."

We can grow together

"North Sails are dominant at the top end of the sports industry, so any growth in the market share will have to take place in the middle and lower end of the sport; basically, we need to target smaller boats," continues Bill. "I believe this is also an opportunity for Twaron®, because aramid is often a more appropriate material for clients of these market segments since carbon fiber is often not appropriate or too expensive. The last few years have also seen a growth in long-distance racing, a market area which takes full advantage of the qualities of aramid fibers. Here at North Sails, we keep closely up to date with Twaron®'s technical innovations, and we're eagerly awaiting some samples of the long-promised higher-modulus aramid fiber. We're also hoping to make use of Twaron® Black in some larger deniers. In short, our future together is looking bright!"



Disclaimer: this data reflects our best knowledge at the time of publication. The content is subject to change as a result of new developments. It only contains a selection of the properties of the product(s) and is meant for commercial use only. Teijin Aramid gives no warranties and does not accept any liability regarding (i) the fitness of the products for any particular use, (ii) the correctness, completeness and usage of the information, (iii) the usage of the products (iv) or any infringement of any (intellectual or industrial) property of a third party. All intellectual property rights regarding this publication are the property of – or are licensed to – Teijin Aramid. Without our prior written consent, the reproduction and publishing of (parts of) this publication is prohibited.



For more information

Please e-mail us at:
composites@teijinaramid.com
or visit our website.