“The high performance of 4T Forte membranes is in no small part down to the qualities of Teijin Aramid’s materials.”

Piercarlo Molta, CEO of Flexon Composites
Founded in 2013, the Italian company Flexon produces high-performance membranes and composites used in a wide variety of industries, including construction, safety garments, and sports and leisure manufacturing. Their new sail membrane, 4T Forte, which is sold exclusively through the retailer OneSails, integrates Teijin Aramid’s materials in order to deliver better product strength and durability at a lower weight.

4T Forte is setting new standards in the sailing world, and further exciting collaboration between Teijin Aramid and Flexon could be on the horizon.

Flexon: Driving composite performance
A long-time sailing and boating fan, Piercarlo Molta founded Flexon Composites with the aim of bringing his competitive edge to the world of composite technology. “I worked with the Italian company OneSails for many years,” says Piercarlo Molta, CEO of Flexon Composites. “Their focus has always been to deliver advanced high-tech products to the sailing market. In 2007, for example, OneSails introduced the first continuous fiber sails without the use of resin or glue. In founding Flexon, I wanted to extend this pioneering approach to a wider range of industries, while still working closely with the sailing and yachting world. Flexon now produces advanced membranes and textiles that are incorporated into consumer products in a wide range of different industries across the world.”

4T Forte technology: A new era of sail-making
One such high-tech product created by Flexon is 4T Forte sail membranes, which have been commercially available since 2013. “From a conceptual point of view, this technology was inspired by advances in the ballistics and biomedical industries,” says Piercarlo Molta. “4T Forte membranes have a

Key benefits of Endumax® for laminated sails:
> Superior strength-to-weight properties
> Excellent stiffness
> High UV resistance
> Easy integration into sail matrix
latticed structure integrating solid elements in the form of STR tape, which are essentially made from Teijin Aramid’s high-performance polyethylene Endumax®. With 4T Forte composite membranes, sails can be up to 25% lighter than film-based sails, as well as significantly more stable, stretch resistant and durable. What’s more, with the 4T Forte membrane does not have to be protected with an extra woven taffeta fabric to improve its UV resistance, which is a real advantage. A new era in sail-making has arrived!

Superior performance with Teijin’s materials
“The high performance of 4T Forte membranes is in no small part down to the qualities of Teijin Aramid’s materials,” says Piercarlo Molta. “Endumax® has a very high modulus, which makes it perfect for this application, as it helps minimize the stretching of the sail. Maintaining the structural integrity of the sail improves the performance of the sail significantly, and it also means that the sail will have to be replaced less often. Endumax® is also completely compatible with the other materials that we use to create the polymerized matrix, meaning that we can reduce the weight of our medium cruising sail to 400g/m², and to 200g/m² for our racing light jib. Again, this makes the sails more user friendly and improves the performance of the sails.”

“With composite membranes made with Endumax®, sails can be made up to 25% lighter than film-based sails, as well as significantly more stable, stretch resistant and durable.”

Further clear sailing ahead
“There is a lot of clear common ground between Teijin Aramid and Flexon,” says Piercarlo Molta. “Both companies are focused on delivering high-quality materials and improving the performance of end-user products. The collaboration with Teijin Aramid has so far proved very successful, and I’m glad that they are always keen to think along with us, as well as offering technical support. I’m sure that in the future we’ll be able to integrate more Twaron® and Endumax® into our products. Watch this space!”