

Dissecting New Fiber Technology

Here's a brief introduction to the most common fibers used in sailing cordage.

Technora: A cousin of Kevlar, Technora is an aramid fiber that leverages the alignment and cohesiveness of the polymer to up its tensile strength. In addition to being a superior low-stretch, high-strength fiber it does not melt or creep (permanently deform) and is very abrasion resistant. Unfortunately, the fiber is very UV sensitive and also negatively affected by acids and salts, making it impractical except as a core material.

Spectra/Dyneema ultra-high-molecular-weight polyethylene (UHMWPE): Creep is an issue with this olefin fiber, and under high continuous load, some elongation will occur. Many riggers feel that this is not an issue of concern because the safe working load is such a small percentage of the breaking strength. UHMWPE line's low density, light weight, and good UV stability make this super-strong rope fiber popular in halyards. Akin to Teflon, its lubricity makes it slippery on winches and more tricky to knot. Many racers strip the cover from the line once it's past the point where it rides on a winch drum.

Vectran: This aromatic polyester is so tough and strong that the aerospace industry built NASA's bounce bags for the Pathfinder mission's Mars Lander out of the fiber. Nearly immune to creep and chemically stable, the fiber puts up with UV irradiation and is considered long-term stable by engineers. It's hydrophobic, quite abrasion resistant, and has good flex char-

acteristics. In short it's a blend of tensile strength, toughness, and environmental durability that makes it a standout fiber in both short, and long-term applications.

Polyester fibers: Polyester is a mid-strength, long lived cordage hero that's stood the test of time. Made from a chemical reaction that includes heat and the mixing of an alcohol and an acid, the polymer brew is extruded as filaments through a spinneret pulled to stretch molecules into alignment and spun into yarns. Chemical coating can be added to suit the needs of sailmakers as well as cordage manufacturers. The resulting yarns are not as strong or stretch resistant as the esoteric fibers listed above but they are tough, abrasion resistant and long lived in the marine environment. This is a key reason why 24 of the 26 braided lines we tested had polyester covers.



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1. Yale Vizzion, with its Vectran core, resisted creep well. 2. A highly magnified tuft was the only sign of abrasion in the Amsteel. 3. The braided core of New England Ropes Endura is a blend of polyester and Dyneema. 4. The Novabraid XLE earned high marks as a sheet.