

WHY VECTRAN® LIQUID CRYSTAL POLYMER?

Key Features

- High strength to weight ratio
- Good creep resistance
- High abrasion resistance
- Excellent flex fatigue properties
- Minimal moisture absorption
- Excellent chemical resistance

Disadvantages

- Vectran® suffers from UV degradation, which causes strength loss and discoloration
- Hair-like filaments tend to fray

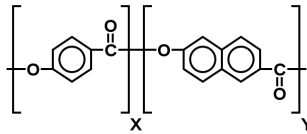
FIBER-LINE® PROCESS FOR VECTRAN® LIQUID CRYSTAL POLYMER

- Coating
- Twisting
- Extrusion
- Pultrusion
- Precision Winding

FIBER-LINE® VECTRAN® PRODUCTS

- Strength Members
- Ripcords
- Belt & Hose Reinforcement Yarn
- Industrial Fabric Yarn
- Synthetic Wire Rope

Molecular Structure



Chemical Name

Liquid Crystal Polymer (LCP).

Manufacturer

Kuraray™.

History

First produced in 1990, Vectran® is the only commercially available melt spun LCP fiber in the world. Vectran® fibers have been utilized by NASA on the Mars Pathfinder.

Composition

Vectran® is an aromatic polyester spun from a liquid crystal polymer in a melt extrusion process. This process orients the molecules along the fiber axis, resulting in a high tenacity fiber. Vectran® is thermotropic and melts at 330°C.

Common Deniers

200, 400, 750, 1000, 1420, 1500, 2250.

Types

- HT : High Tenacity.
- UM : Higher Modulus/Lower Elongation.
- NT : Medium tenacity.



LIQUID CRYSTAL POLYMER (HM) BARE FIBER PERFORMANCE

Abrasion Resistance	Yarn on Yarn Abrasion	Ultraviolet (UV) Resistance	Flame Resistance	Chemical Resistance (Acid)	Chemical Resistance (Alkali)	Chemical Resistance (Organic Solvent)
✓	✓	X	✓	✓	✓	✓

CHEMICAL COMPATIBILITY

Chemical Resistance to Acid: Stable to acids <90% concentration.

Chemical Resistance to Alkali: Stable to alkalis <30% concentration.

LIQUID CRYSTAL POLYMER (LCP)

Standard Modulus

Property	UOM	Value
Breaking Tenacity	g/d	23.0
Specific Gravity	Ratio	1.40
Elongation @ Break	%	3.8
Tensile Modulus	g/d	600
Moisture Regain*	%	<0.1
Creep**	%	<0.04
Shrinkage***	%	<0.20
Melt Point	°C	350

High Modulus

Property	UOM	Value
Breaking Tenacity	g/d	30.0
Specific Gravity	Ratio	1.40
Elongation @ Break	%	2.8
Tensile Modulus	g/d	830
Moisture Regain*	%	<0.1
Creep**	%	<0.04
Shrinkage***	%	<0.20
Melt Point	°C	350

* Equilibrium moisture regain @ 55% RH ** Creep @ 40%-58% ultimate tensile strength *** Shrinkage in dry air @ 177 C for 30 minutes

This data is provided for informational purposes only, and does not constitute a specification. FIBER-LINE® makes no warranty, express or implied, that the product conforms to these values. Contact your FIBER-LINE® representative for exact product details which conform to your specific requirements.

ABOUT FIBER-LINE®

For over 25 years, FIBER-LINE® has provided science-driven expertise that improves the performance and the end-use processing of high performance fibers. Our products enable the search for new energy reserves and extend the life of fiber optic telecommunication cables. They also add important characteristics, such as SWELLCOAT® water-blocking, water repellence, adhesion, color, and wear and UV-resistance to these and many other applications. We believe that our ongoing commitment to protect the environment, to remain at the forefront of fiber and coating technology, and to 'treat others as we want to be treated' will continue to drive the success of our customers, shareholders, and employees.



LOCATIONS

Headquarters, R&D, Manufacturing

FIBER-LINE® LLC
3050 Campus Drive
Hatfield, PA 19440
+1 215.997.9181
fiber@fiber-line.com

Manufacturing Operations

FIBER-LINE® LLC
280 Performance Drive SE
Hickory, NC 28602
+1 828.326.8700
fiber@fiber-line.com

EMEA & Asia Pacific Operations

FIBER-LINE® INTERNATIONAL B.V.
Uranusweg 3
8938 AJ Leeuwarden
The Netherlands
+31(0) 58 216 75 99
info@fiber-line.com