**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

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**Molecular Structure**

![Molecular Structure Image]

**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

<table>
<thead>
<tr>
<th>Property</th>
<th>UOM</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaking Tenacity</td>
<td>g/d</td>
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</tr>
<tr>
<td>Specific Gravity</td>
<td>Ratio</td>
<td>1.40</td>
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<tr>
<td>Elongation @ Break</td>
<td>%</td>
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<tr>
<td>Tensile Modulus</td>
<td>g/d</td>
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<tr>
<td>Moisture Regain*</td>
<td>%</td>
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</tr>
<tr>
<td>Creep**</td>
<td>%</td>
<td>&lt;0.04</td>
</tr>
<tr>
<td>Shrinkage***</td>
<td>%</td>
<td>&lt;0.20</td>
</tr>
<tr>
<td>Melt Point</td>
<td>°C</td>
<td>350</td>
</tr>
</tbody>
</table>

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

CHEMICAL COMPATIBILITY
Chemical Resistance to Acid: Stable to acids <90% concentration.
Chemical Resistance to Alkali: Stable to alkalis <30% concentration.

LIQUID CRYSTAL POLYMER (LCP)

<table>
<thead>
<tr>
<th>Property</th>
<th>UOM</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaking Tenacity</td>
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<tr>
<td>Specific Gravity</td>
<td>Ratio</td>
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<tr>
<td>Elongation @ Break</td>
<td>%</td>
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</tr>
<tr>
<td>Tensile Modulus</td>
<td>g/d</td>
<td>830</td>
</tr>
<tr>
<td>Moisture Regain*</td>
<td>%</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Creep**</td>
<td>%</td>
<td>&lt;0.04</td>
</tr>
<tr>
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</table>

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.
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.