**Key Features**
- High strength to weight ratio
- Low elongation to break
- Good heat & flame resistance
- Good chemical resistance
- High cut resistance
- Excellent ballistic properties

**Disadvantages**
- Kevlar® suffers from UV degradation, which causes strength loss and discoloration
- Propensity to absorb moisture, up to 5% moisture regain
- Poor compressive force properties

**FIBER-LINE® PROCESS FOR KEVLAR®**
- Coating
- Twisting
- Extrusion
- Pultrusion
- Precision Winding

**FIBER-LINE® KEVLAR® PRODUCTS**
- Ripcords
- Strength Members
- Industrial Fabric Yarn
- Swellcoat® Binder Yarn in between strength members and industrial fabric yarn
- Belt & Hose Reinforcement Yarn
- Packing Yarn
- Wire Harness Yarn
- Synthetic Wire Rope
- Kevlar® Distribution Program

**Molecular Structure**

![Molecular Structure Diagram]

**Chemical Name**
Poly-para-phenylene terephthalamide.

**Manufacturer**
DuPont™.

**History**
Kevlar® was first developed by chemist Stephanie Kwolek at DuPont™ in the 1930’s. It was first commercially used in the 1970’s as a replacement for steel in racing tires.

**Composition**
Kevlar® is an aromatic polyamide that is characterized by long rigid crystalline polymer chains. “Para” refers to the specific linkage position of the aromatic rings. Longitudinal alignment of the hydrogen bonds enables high tensile strength and modulus.

**Common Deniers**
200, 380, 400, 750, 800, 1000, 1420, 2160, 2250, 2840, 3000, 7100.

**Types**
- T-29: Standard Modulus.
- AP: 15% higher tenacity than T-29.
- KM2: Optimized ballistic resistance for armor applications.
**KEVLAR® PARA-ARAMID (HM) BARE FIBER PERFORMANCE**

<table>
<thead>
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**CHEMICAL COMPATIBILITY**

- **Chemical Resistance to Acid:** Degrades in Formic, Hydrochloric, and Sodium Hydroxide acid.
- **Chemical Resistance to Alkali:** Strong alkalis will attack at high temperature or concentration.
- **Chemical Resistance to Organic Solvent:** Degrades moderately in Carbon Tetrachloride and Ethylene Glycol/Water.

**KEVLAR® PARA-ARAMID DATA**

### Standard Modulus

<table>
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<tr>
<th>Property</th>
<th>UOM</th>
<th>Value</th>
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<tbody>
<tr>
<td>Breaking Tenacity</td>
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<tr>
<td>Specific Gravity</td>
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<tr>
<td>Elongation @ Break</td>
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<tr>
<td>Tensile Modulus</td>
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<td>Moisture Regain*</td>
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<tr>
<td>Creep**</td>
<td>%</td>
<td>&lt;0.03</td>
</tr>
<tr>
<td>Shrinkage***</td>
<td>%</td>
<td>&lt;0.02</td>
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<tr>
<td>Melt Point</td>
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<tr>
<td>Decomposition Temp.</td>
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### High Modulus

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<td>Specific Gravity</td>
<td>Ratio</td>
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<td>Creep**</td>
<td>%</td>
<td>&lt;0.03</td>
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<tr>
<td>Shrinkage***</td>
<td>%</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>Melt Point</td>
<td>°C</td>
<td>None</td>
</tr>
<tr>
<td>Decomposition Temp.</td>
<td>°C</td>
<td>425-480</td>
</tr>
</tbody>
</table>

* 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 SWELLCOT® 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.

DUPONT™ PARTNERSHIP

• FIBER-LINE® values its relationships with both its customers and suppliers. Over the last several years, FIBER-LINE® and DuPont™ have formed a strong partnership based upon the synergies between both organizations.
• FIBER-LINE®’s ability to add value to the already attractive properties of both Kevlar® Para-Aramid & Nomex® Meta-Aramid creates more opportunity in the market place to provide solution driven products to a diverse range of markets.
• Because FIBER-LINE® already processes so many different types and deniers of both Kevlar® & Nomex®, we have been authorized by DuPont™ to distribute small quantities of these fibers to an ever-growing customer base.
• Through this program, we hope to introduce businesses of all sizes to the benefit of Aramid fibers. Contact us today for small order quantity orders.

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