VICTREX™ PEEK BATTERY SOLUTIONS
ENABLING ENHANCED PERFORMANCE AND RELIABILITY
Advancements in Li-ion battery technology have been a game-changer, with emerging interests and demands across markets and industries. While Li-ion is expected to be a major power source for a variety of devices from mobile phones to electric vehicles, solid-state batteries are emerging as a next-generation technology to drive innovation with fewer risks of failures or defects than current wet battery technology and a potential reduction in charging times thanks to higher density.

As the #1 PEEK expert with more than 40 years of experience, Victrex can help you tackle challenges in adapting new battery technologies from concept to commercialisation with innovative high-performance PEEK polymer-based solutions that help avoid battery defects and enable reliable performance.

WE’VE GOT YOUR BATTERY’S BACK!
SUPPORTING RELIABLE BATTERY OPERATION WITH VICTREX™ PEEK

**Low Moisture Absorption & Transmission**
- Preserving battery function throughout the full life cycle
- 0.21% weight gain after 24 hours exposure to 23°C at 50% relative humidity (test method: ISO 62:2008(E))
- WVTR (Water Vapor Transfer Rate) of 7.53 g/m2/day at 50μm thickness, 23°C at 100% relative humidity (test method: ASTM F1249)

**High-Temperature Resistance**
- For a wide temperature range of -40°C to 260°C and even higher for short duration
- Enabling more efficient high-temperature operation and maintaining mechanical integrity during extreme temperature excursions

**Chemical Resistance**
- Chemically compatible and inert in typical battery chemistry for present and next generation cells

**Dimensional Stability**
- Providing low thermal expansion combined with superior resistance to creep with limited to no moisture swelling

**Electrical Stability**
- Electrical insulation with dielectric strength up to 270 kV/mm enabling higher voltage and power applications

**Halogen-free**
- High purity, able to meet NASA requirements for low outgassing (test methods: http://outgassing.nasa.gov)
- Free of halogenated additives including Br and Cl resulting in low smoke and toxic gas emissions in fire situations

**Manufacturing Versatility**
- Supporting scalable manufacturing,
- Multiple assembly options and
- Recyclability for more sustainable battery solutions

Supporting information on all claims is available upon request from Victrex
APPLYING THE VICTREX™ PEEK ADVANTAGE

To support your projects from concept to commercialisation, our high-performing thermoplastic VICTREX PEEK-based solutions are available in the following formats:

- **APTIV™ films**  
  ranging from 3 to 650µm
- **ZYEX™ fibres**  
  from 0.07 mm to 2.00 mm
- **VICTREX™ PEEK polymer**  
  pellet forms for other geometries

Typical customer applications include:

- Insulative Liners and Layers
- Gaskets and Seals
- Connectors
- High-Temperature Pouches
- Terminals
- Circuit Substrates

### VICTREX PEEK - KEY MATERIAL PROPERTIES

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Thickness</th>
<th>Dielectric Strength</th>
<th>Breakdown Voltage</th>
<th>RTI, Electrical</th>
<th>Tensile Strength</th>
<th>Tensile Modulus</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>kv/mm ASTM D149</td>
<td>kV</td>
<td>°C, UL7468</td>
<td>MPa, ISO 527</td>
<td>GPa, ISO 527</td>
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<td>15.00</td>
<td>240</td>
<td>120</td>
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<td>70</td>
<td>17.50</td>
<td>240</td>
<td>110</td>
<td>2.3</td>
</tr>
<tr>
<td>VICTREX PEEK 150G resin</td>
<td>2 mm</td>
<td>23</td>
<td>46</td>
<td>260</td>
<td>105</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Let’s discuss how we can support your next project. contact our expert team directly at:  

batterysolutions@victrex.com
As a global high-performance polymer solutions provider, Victrex serves more than 40 geographies worldwide across the automotive, aerospace, medical, electronics, industrial and energy markets. VICTREX™ PEEK is regarded as one of the highest performing engineering thermoplastics in the world, and is used by leading companies to develop fuel-efficient automobiles and aeroplanes, advanced medical devices, next generation technology and tools for the harshest environments.