



VICTREX™ PEEK BATTERY SOLUTIONS

ENABLING ENHANCED PERFORMANCE
AND RELIABILITY

ENHANCING BATTERY PERFORMANCE AND RELIABILITY



FROM CONCEPT TO COMMERCIALISATION

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

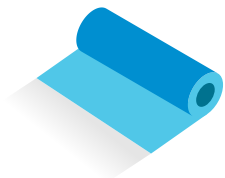


Manufacturing Versatility

- ▶ Supporting scalable manufacturing,
- ▶ Multiple assembly options and
- ▶ Recyclability for more sustainable battery solutions

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
- ▶ Terminals
- ▶ Connectors
- ▶ High-Temperature Pouches
- ▶ Circuit Substrates

VICTREX PEEK - KEY MATERIAL PROPERTIES

Material Type	Thickness	Dielectric Strength	Breakdown Voltage	RTI, Electrical	Tensile Strength	Tensile Modulus
		kv/mm ASTM D149	kV	°C, UL7468	MPa, ISO 527	GPa, ISO 527
APTIV film	25 µm	270	6.75	240	120	2.6
	50 µm	190	9.50	240	120	2.5
	125 µm	120	15.00	240	120	2.3
	250 µm	70	17.50	240	110	2.3
VICTREX PEEK 150G resin	2 mm	23	46	260	105	4.1

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

batterysolutions@victrex.com

Build Confidence Through Reliable, Proven
and Cost-Effective PEEK-Based Solutions
in Polymers, Forms and Parts

#1
PEEK
expert

40+
years

of collaboration
with market
leaders along
the value
chain



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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.

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