

PEEK: Polyetheretherketone



PRODUCT DESCRIPTION

PEEK is a high-performance thermoplastic that has an extraordinary combination of mechanical, structural and chemical resistance.

Afton Plastics processes the following grades of PEEK:

VICTREX® 450G (Virgin)

VICTREX® 450CA30 (30% Carbon Fiber Reinforced)

VICTREX® 450FC30 (Bearing Grade)

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PRODUCT BENEFITS

- Chemical resistance
- UL94 V-0 flammability rating down to 0.59"
- Wear resistance
- Service temperature: -50°F to +500°F
- Hydrolysis resistance
- Radiation resistance
- FDA compliant

TYPICAL APPLICATIONS

- Thrust washers
- Pump gears
- Compressor valve plates
- Electrical connectors
- Valve seats and seals
- Bearings and bushings

MATERIAL CLASS

- Mil-P 46183 Amendment 2, Dated July 1, 1999
- Type I - nonreinforced plastic
- Type III Class 2 - 30% carbon fiber reinforced
- FDA compliant per 21CFR 177.2415

Data Sheet - Victrex® PEEK

PROPERTY	TEST METHOD	UNIT	GRADE		
			450G	450FC30	450CA30
MECHANICAL/PHYSICAL					
Density (Crystalline)	ISO 1183	g/cm ³	1.3	1.45	1.4
Water Absorption, By Immersion, Saturation, 23°C	ISO 62-1	%	0.45	0.35	0.30
Tensile Strength, 23°C	ISO 527	MPa	Yield 98	Break 150	Break 265
Elongation, 23°C, Break	ISO 527	%	45.0	2.3	1.7
Compressive Strength, 23°C	ISO 604	MPa	125.0	170	300
IZOD Impact Strength, 23°C, Notched	ISO 180/A	kJm ⁻²	8.0	7.0	10.5
Flexural Modulus, 23°C	ISO 178	Gpa	3.8	11.5	24.0
Flexural Strength, At 3.5% Strain, 23°C	ISO 178	Mpa	125	No Results	No Results
Flexural Strength, 23°C	ISO 178	Mpa	Yield 165	230	380
Shore D Hardness, 23°C	ISO 868		84.5	83	87.5
THERMAL					
Melting Point	ISO 11357	°C	343	343	343
Heat Deflection Temperature, As Moulded, 1.8 Mpa	ISO 75-f	°C	152	315	336
Coefficient of Thermal Expansion, Avg. below Tg (143°C)	ISO 11359	ppm K ⁻¹	55	45	40
Coefficient of Thermal Expansion, Avg. above Tg	ISO 11359	ppm K ⁻¹	140	115	100
Thermal Conductivity, Avg., 23°C	ISO 22007-4	Wm ⁻¹ L ⁻¹	0.29	0.85	0.95
Continuous Use Temperature		°C	250	250	250
ELECTRICAL					
Volume Resistivity, 23°C	IEC 60093	ohm-cm	10 ¹⁶	No Results	No Results
Volume Resistivity, 23°C, 1V	IEC 60093	ohm-cm	No Results	10 ¹⁰	10 ⁵
Dielectric Strength, 50 µm thickness	IEC 60243-1	Kv mm ⁻¹	200	No Results	No Results
Dielectric Constant 23°C, 1kHz	IEC 60250	n/a	3.1	No Results	No Results
Loss Tangent (Dissipation Factor) 23°C, 1MHz	IEC 60250	n/a	0.004	No Results	No Results

Information provided by Victrex®.

Note: The data provided in this table are typical for the resins tested and do not represent product specifications. Victrex® is a registered trademark of Victrex Manufacturing, a division of Victrex PLC.

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