



# ESD PEKK

PRODUCTION-GRADE THERMOPLASTIC FOR  
FORTUS 3D PRINTERS



ESD PEKK (electrostatic dissipative polyetherketoneketone) is a thermoplastic with static dissipative properties for applications where a static charge can damage products or impair performance. It has excellent chemical resistance and favorable mechanical and thermal properties, making it appropriate for demanding applications that require resistance to electrostatic discharge.





# ESD PEKK

## PRODUCTION-GRADE THERMOPLASTIC FOR FORTUS 3D PRINTERS

### Ambient Temperature Mechanical Testing\*

MECHANICAL PROPERTIES	TEST METHOD	XZ ORIENTATION (ON-EDGE)	ZX ORIENTATION (VERTICAL)	XZ ORIENTATION (ON-EDGE)	ZX ORIENTATION (VERTICAL)
		ENGLISH		METRIC	
Tensile Stress, Ultimate	ASTM D638 (Type 1)	12,900 psi	8,590 psi	88.9 MPa	59.2 MPa
Tensile Modulus	ASTM D638 (Type 1)	449,000 psi	424,000 psi	3,090 MPa	2,920 MPa
Tensile Elongation at Break	ASTM D638 (Type 1)	4.7%	2.3%	4.7%	2.3%
Flexural Stress at 5% Strain	ASTM D790	18,900 psi	Break	130 MPa	Break
Flexural Strength	ASTM D790	No Break	11,700 psi	No Break	80.7 MPa
Flexural Strain at Break	ASTM D790	No Break	3.1%	No Break	3.1%
Flexural Modulus	ASTM D790	451,000 psi	392,000 psi	3,110 MPa	2,700 MPa
IZOD Impact Strength - Notched	ASTM D256	0.77 ft-lb/in.	0.51 ft-lb/in.	41 J/m	27 J/m
IZOD Impact Strength - Unnotched	ASTM D4812	6.58 ft-lb/in.	2.67 ft-lb/in.	351 J/m	143 J/m
Compressive Yield Stress	ASTM D695	15,000 psi	15,200 psi	103 MPa	105 MPa
Maximum Compressive Strength	ASTM D695	53,500 psi	68,200 psi	369 MPa	470 MPa
Compressive Modulus	ASTM D695	494,000 psi	466,000 psi	3,410 MPa	3,210 MPa
V-Notched Shear Strength	ASTM D5379	7,330 psi	7,320 psi	50.5 MPa	50.5 MPa

### OTHER PROPERTIES\*

OTHER PROPERTIES*	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.27
Surface Resistivity	ASTM D257	106-109 Ω/sq
Outgassing - Total Mass Loss (TML)	ASTM E595	0.41%
Outgassing - Collected Volatile Condensable Material (CVCM)	ASTM E595	0.00%

### THERMAL PROPERTIES\*

THERMAL PROPERTIES*	TEST METHOD	ENGLISH	METRIC
Heat Deflection Temperature (66 psi)	ASTM D648	310 °F	154 °C
Heat Deflection Temperature (264 psi)	ASTM D648	301 °F	149 °C
Coefficient of Thermal Expansion (flow)	ASTM E831	2.74x10 <sup>-5</sup> /°F	4.93x10 <sup>-5</sup> /°C
Coefficient of Thermal Expansion (xflow)	ASTM E831	2.36x10 <sup>-5</sup> /°F	4.25x10 <sup>-5</sup> /°C
Melting Temperature	ASTM D3418	577 °F	303 °C



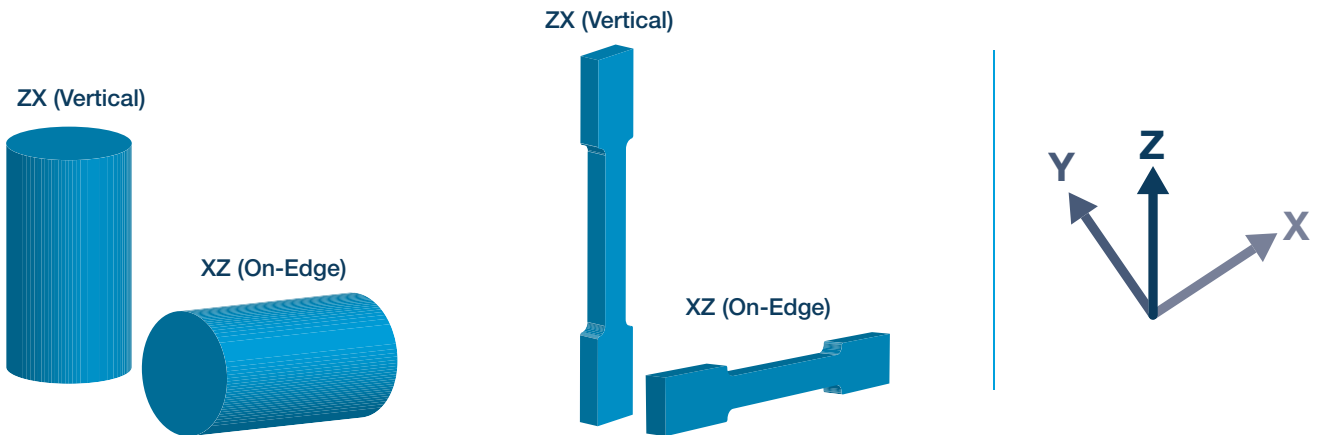
# ESD PEKK

PRODUCTION-GRADE THERMOPLASTIC FOR FORTUS 3D PRINTERS

## ELEVATED TEMPERATURE (250 °F, 121 °C) MECHANICAL TESTING\*

MECHANICAL PROPERTIES	TEST METHOD	XZ ORIENTATION (ON-EDGE)	ZX ORIENTATION (VERTICAL)	XZ ORIENTATION (ON-EDGE)	ZX ORIENTATION (VERTICAL)
		ENGLISH		METRIC	
Tensile Stress, Ultimate	ASTM D638 (Type 1)	7,090 psi	5,990 psi	48.9 MPa	41.3 MPa
Tensile Modulus	ASTM D638 (Type 1)	421,000 psi	400,000 psi	2,900 MPa	2,760 MPa
Tensile Elongation at Break	ASTM D638 (Type 1)	2.6%	2.2%	2.6%	2.2%
Flexural Strength	ASTM D790	11,080 psi	8,980 psi	76.4 MPa	61.9 MPa
Flexural Strain at Break	ASTM D790	3.73%	4.03%	3.73%	4.03%
Flexural Modulus	ASTM D790	393,000 psi	319,000 psi	2,710 MPa	2,200 MPa
IZOD Impact Strength - Notched	ASTM D256	0.55 ft-lb/in.	0.54 ft-lb/in.	29 J/m	29 J/m
IZOD Impact Strength - Unnotched	ASTM D4812	10.05 ft-lb/in.	1.82 ft-lb/in.	537 J/m	97.2 J/m
Compressive Yield Stress	ASTM D695	7,980 psi	8,420 psi	55.0 MPa	58.1 MPa
Compressive Modulus	ASTM D695	428,000 psi	432,000 psi	2,950 MPa	2,980 MPa
V-Notched Shear Strength	ASTM D5379	3,820 psi	3,790 psi	26.3 MPa	26.1 MPa

## ORIENTATION GUIDE





# ESD PEKK

## PRODUCTION-GRADE THERMOPLASTIC FOR FORTUS 3D PRINTERS

### At the core:

#### Advanced FDM Technology

FDM® (fused deposition modeling) technology works with engineering-grade thermoplastics to build strong, long-lasting and dimensionally stable parts with the best accuracy and repeatability of any 3D printing technology. These parts are tough enough to be used as advanced conceptual models, functional prototypes, manufacturing tools and production parts.

#### Meet production demands

FDM systems are as versatile and durable as the parts they produce. Advanced FDM 3D Printers boast the largest build envelopes and material capacities in their class, delivering longer, uninterrupted build times, bigger parts and higher quantities than other additive manufacturing systems, delivering high throughput, duty cycles and utilization rates.

#### Opening the way for new possibilities

FDM 3D Printers streamline processes from design through manufacturing, reducing costs and eliminating traditional barriers along the way. Industries can cut lead times and costs, products turn out better and get to market faster.

#### No special facilities needed

FDM 3D Printers are easy to operate and maintain compared to other additive fabrication systems because there are no messy powders or resins to handle and contain, and no special venting is required because FDM systems don't produce noxious fumes, chemicals or waste.

The performance characteristics of these materials may vary according to application, operating conditions, or end use. The information presented are typical values intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, etc. Actual values will vary with build conditions. Tested parts were built on Fortus 400mc™ @ 0.010" (0.254 mm) slice. Product specifications are subject to change without notice.

The performance characteristics of these materials may vary according to application, operating conditions, or end use. Each user is responsible for determining that the Stratasys material is safe, lawful, and technically suitable for the intended application, as well as for identifying the proper disposal (or recycling) method consistent with applicable environmental laws and regulations. Stratasys makes no warranties of any kind, express or implied, including, but not limited to, the warranties of merchantability, fitness for a particular use, or warranty against patent infringement.

*\*Data values are preliminary and subject to change.*

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