



TYPICAL PROPERTIES

Reference Document No. GTS-3300S

Compound No./Material Name: ARLON® 3000 XT	Material Description: Enhanced PEEK	Manufacturing Method: Injection Molded
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Property/Units	Test Conditions/Method	Arlon 3000 XT	PEEK
Physical and Mechanical Properties			
Color		Black	Tan
Specific Gravity	ASTM D792	1.29	1.30
Hardness, Shore D, Points	ASTM D2240	88	87
Izod Impact, Notched, ft-lbf/in [J/m]	ASTM D256	1.64 [87.6]	1.38 [73.7]
Izod Impact, Unnotched, ft-lbf/in [J/m]	ASTM 4812	37.8 [2,018.5]	no break
Water Absorption Change in Weight, %	ASTM D570 @ 24 Hrs.,	0.09	0.07
Coefficient of Friction Dynamic	ASTM 3702 (PV=5000 psi-ft/min.)	0.60	0.56
Wear Factor x10-10 in3 min/(ft-lb-hr)	ASTM 3702 (PV=5000 psi-ft/min.)	110.6	451.4
Heat Deflection Temperature °F [°C]	ASTM D648 @ 264 psi (1.83 MPa)	>572 [>300]	338 [170]
DSC, Melting Point (Tm), °F [°C]	ASTM D3418	665 [352]	649 [343]
Electrical Properties			
Dielectric Strength, V/mil **	ASTM D 149	730	777
Time to Dielectric Breakdown, min.	Greene Tweed Custom Test at 232 °C/450°F*	>240	0.5
	IEC 60502-4 Compliance Test **	>240	60
Dielectric Permittivity, pF/m	Dielectric Spectroscopy (DETA) at 300 °C #	34	245
Dissipation Constant	Dielectric Spectroscopy (DETA) at 300 °C #	0.35	2.28
Volume Resistivity, Ohm-m [®]	D257 at 23 °C	10 ¹³	10 ¹⁴
Surface Resistivity, Ohm/square [®]	D257 at 23 °C	10 ¹⁵	10 ¹⁵
Thermal Properties			
CTE (µm/m·°C), X-axis Only	ASTM E831-14		
	(-50-50°C)	44	49
	(55-135°C)	51	53
	(195-295°C)	101	175
	(350-380 °C)	189	NA

* Test sample thickness: 0.020", voltage: 10 kV DC, using 1 inch diameter electrodes designed as per ASTM D149

** 40-mil-thick sample

Comparative study using DETA on parallel plate geometry, with 2 N axial loading at ramp rate of 10°C/min, 100 Hz frequency, 20 V DC at 300°C on 3 mm thick samples

** 20 kV AC submerged in water, 70°F, 1 atm pressure

® Resistivity data for PEEK is from competitive literature

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ARLON® 3000 XT

Material Description:

Enhanced PEEK

Manufacturing Method:

Injection Molded

Property/Units	Test Conditions/ Method	Arlon 3000 XT			PEEK		
		75°F (23°C)	392°F (200°C)	500°F (260°C)	75°F (23°C)	392°F (200°C)	500°F (260°C)
Temperature Properties							
Tensile Yield Strength, psi [MPa]	D638-Type1	17,100 [117.90]	4,820 [33.23]	3,820 [28.27]	14,900 [102.73]	4,200 [28.96]	2,600 [17.93]
Tensile Strength at Break, psi [MPa]	D638-Type1	16,900 [116.50]	7,620 [52.54]	5,380 [37.09]	14,100 [97.22]	6,300 [43.44]	6,100 [42.06]
Elongation at Break, %	D638-Type1	8-15	>25	>25	25-35	>40	>40
Tensile Modulus, psi [MPa]	D638-Type1	559,000 [3,854.17]	175,160 [1,207.69]	88,100 [607.43]	595,000 [4,102.4]	57,300 [395.07]	38,700 [266.83]
Flexural Strength at 5% Strain, psi [MPa]	D790	23,300 [160.65]	5,880 [40.54]	3,740 [25.79]	25,700 [177.20]	3,400 [23.44]	2,300 [15.86]
Flexural Modulus, psi [MPa]	D790	628,000 [4,329.91]	158,000 [1,089.37]	90,200 [621.91]	654,000 [4,509.17]	76,000 [524.00]	50,300 [346.81]
Compressive Strength, psi [MPa]	D695	22,000 [151.68]	10,300 [71.02]	5,500 [37.92]	19,900 [137.21]	4,080 [28.13]	2,590 [17.86]
Compressive Modulus, psi [MPa]	D695	525,000 [3,619.75]	226,000 [1,558.22]	132,000 [910.11]	592,200 [4,083.08]	75,200 [518.49]	16,900 [116.52]
Shear Strength psi [MPa]	D732 (test performed on flex bars)	15,300 [105.49]	9,050 [62.40]	6,880 [47.44]	12,700 [87.56]	4,100 [28.27]	3,300 [22.75]

typical properties / arlon® 3000 xt

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