



Arlon® 3000 XT Sealing Solutions

| | | |
|------------------------------------------------------|-----------------------------------------------|--------------------------------------------------|
| Compound No./Material Name: Arlon® 3000 XT | Material Description: Enhanced PEEK | Manufacturing Method: Injection Molded |
|------------------------------------------------------|-----------------------------------------------|--------------------------------------------------|

| Property/Units | Test Conditions/Method | Arlon® 3000 XT | PEEK |
|----------------------------------------------------------------|---------------------------------------------------------|------------------|------------------|
| Physical & 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 Hours | 0.09 | 0.07 |
| Coefficient of Friction Dynamic | ASTM 3702 (PV=5000 psi-ft/min.) | 0.60 | 0.56 |
| Wear Factor x10 ⁻¹⁰ in. ³ 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 |

Notes:

* 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.

Contact Us

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Compound No./Material Name:
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] |
| 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] | 59,5000 [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] |

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