



# TYPICAL PROPERTIES

Reference Document No. GTS-0009S

Compound No./Material Name: <b>ARLON® 1000</b>	Material Description: <b>Polyketone, Virgin MIL-P-46183, Type I</b> <small>(With exceptions, Contact Greene, Tweed Engineering)</small>	Manufacturing Method: <b>Injection Molded</b>
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DESCRIPTION (ASTM Standards)	TYPICAL		
<b>Physical &amp; Mechanical Properties</b>			
Color	Tan		
Specific Gravity (D792)	1.30		
Hardness, Shore D, Points (D2240)	88		
Hardness, Rockwell M, Points (D785)	104		
Tensile Yield Strength, psi [MPa] (D638)	15,600 [107.6]		
Tensile Break Strength, psi [MPa] (D638)	14,000 [96.5]		
Tensile 0.5% Secant Modulus, psi [MPa] (D638)	615,000 [4,240.3]		
Elongation, % (D638)	35		
Flexural Strength, psi [MPa] (D790)	25,300 [174.4]		
Flexural 0.5% Secant Modulus, psi [MPa] (D790)	600,000 [4,136.9]		
Shear Strength, Axial, psi [MPa] (D732)	12,400 [85.5]		
Shear Strength, Transverse, psi [MPa] (D732)	12,400 [85.5]		
Compressive Strength @ Break, psi [MPa] (D695)	19,000 [131.0]		
Deformation Under Load, % (D621)	0.09		
Heat Deflection Temperature @ 264 psi, °F [°C] (D648)	350 [177]		
Coefficient of Dynamic Friction, PV=12,600 psi-ft./min [2250.1 kg/cm] (G77)	0.29		
Wear Factor, Modified ASTM G77, 10 <sup>-10</sup> in. <sup>3</sup> -min/(lb.-ft.-hr.) (G77)	52		
Coefficient of Thermal Expansion, < 300°F (149°C) 10 <sup>6</sup> in./in.°F [10 <sup>6</sup> cm/(cm°C)] (E228)	26 [46.8]		
Coefficient of Thermal Expansion, > 300°F (149°C) 10 <sup>6</sup> in./in.°F [10 <sup>6</sup> cm/(cm°C)] (E228)	75 [135]		
<b>High Temperature Properties</b>			
Temperature	Tensile Yield Strength, psi [MPa] (D638)	Tensile Break Strength, psi [MPa] (D638)	Flexural Strength @ 5% Strain, psi [MPa] (D790)
75°F (24°C)	14,900 [102.73]	14,100 [97.22]	25,700 [177.19]
200°F (93°C)	11,000 [75.84]	10,500 [72.39]	19,700 [135.83]
250°F (121°C)	— [—]	— [—]	16,600 [114.45]
300°F (149°C)	6,900 [47.57]	7,500 [51.71]	10,500 [72.39]
350°F (177°C)	5,000 [34.47]	6,500 [44.82]	4,000 [27.58]
400°F (204°C)	4,200 [28.96]	6,300 [43.44]	3,400 [23.44]
500°F (260°C)	2,600 [17.93]	6,100 [42.06]	2,300 [15.86]
600°F (316°C)	1,900 [13.10]	4,300 [29.65]	700 [4.83]



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(With exceptions, Contact Greene, Tweed Engineering)

Manufacturing Method:  
**Injection Molded**

typical properties / arlon® 1000

DESCRIPTION (ASTM Standards)			TYPICAL
<b>High Temperature Properties (continued)</b>			
Temperature	Flexural Modulus, psi [MPa] (D790)	Shear Yield Strength, psi [MPa] (D732)	Max. Shear Strength, psi [MPa] (D732)
75°F [24°C]	654,000 [4,509.2]	10,000 [68.9]	12,700 [87.6]
200°F [93°C]	595,700 [4,107.2]	7,700 [53.1]	9,700 [66.9]
250°F [121°C]	582,000 [4,012.7]	6,700 [46.2]	8,200 [56.5]
300°F [149°C]	453,000 [3,123.3]	5,300 [36.5]	6,800 [46.9]
350°F [177°C]	87,600 [541.9]	3,100 [21.4]	4,900 [33.8]
400°F [204°C]	76,000 [524.0]	2,400 [16.5]	4,100 [28.3]
500°F [260°C]	50,300 [346.8]	1,400 [9.7]	3,300 [22.8]
600°F [316°C]	18,500 [127.6]	450 [3.1]	2,300 [15.9]
<b>ICP - Mass Spectrometry Analysis</b>			
Element	TM/Poly Material, ppb	Leachable TM/SC1, ppb	
Aluminum	360	0.9	
Calcium	8,900	*	
Chromium	510	0.2	
Copper	55	0.2	
Iron	4,300	3.6	
Potassium	980	*	
Magnesium	380	0.1	
Sodium	130,000	0.6	
Nickel	600	*	
Lead	53	*	
Tin	*	*	
Titanium	75	*	
Zinc	56	*	

### Note

Specification: MIL-P-46183, Type I, with exceptions, contact Greene, Tweed Engineering.

\* Analysis revealed that the element was not found at or above the detection limit for the test.

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