



## DuPont Delrin (Homopolymer Acetal)

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	0.0509 lb/in <sup>3</sup>	ASTM D792
Water Absorption	0.2 %	0.2 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.9 %	0.9 %	Immersion; ASTM D570(2)
<b>Mechanical Properties</b>			
Hardness, Rockwell M	89	89	ASTM D785
Hardness, Rockwell R	122	122	ASTM D785
Hardness, Shore D	86	86	ASTM D2240
Tensile Strength, Ultimate	75.8 MPa	11000 psi	ASTM D638
Elongation at Break	30 %	30 %	ASTM D638
Tensile Modulus	3.1 GPa	450 ksi	ASTM D638
Flexural Modulus	3.1 GPa	450 ksi	ASTM D790
Flexural Yield Strength	89.6 MPa	13000 psi	ASTM D790
Compressive Strength	110 MPa	16000 psi	10% Def.; ASTM D695
Compressive Modulus	3.1 GPa	450 ksi	ASTM D695
Shear Strength	62.1 MPa	9000 psi	ASTM D732
Coefficient of Friction	0.25	0.25	Dry vs. Steel; QTM55007
K (wear) Factor	403 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	200 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.0946 MPa-m/sec	2700 psi-ft/min	4:1 safety factor; QTM 55007
Izod Impact, Notched	0.534 J/cm	1 ft-lb/in	ASTM D256 Type A
<b>Electrical Properties</b>			
Surface Resistivity per Square	Min 1e+013 ohm	Min 1e+013 ohm	EOS/ESD S11.11
Dielectric Constant	3.7	3.7	1MHz; ASTM D150
Dielectric Strength	17.7 kV/mm	450 V/mil	Short Term; ASTM D149
Dissipation Factor	0.005	0.005	1MHz; ASTM D150
<b>Thermal Properties</b>			
CTE, linear 68°F	84.6 μm/m-°C	47 μin/in-°F	(-40°F to 300°F); ASTM E831
Thermal Conductivity	0.36 W/m-K	2.5 BTU-in/hr-ft <sup>2</sup> -°F	ASTM F433
Melting Point	175 °C	347 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	82.2 °C	180 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	121 °C	250 °F	ASTM D648
Flammability, UL94 (Estimated Rating)	HB	HB	1/8 inch
<b>Qualitative Processing Properties</b>			
Compliance - FDA	Compliant		
Machinability	1	1-10, 1=Easier to Machine	
Service in Alcohols	Acceptable		
Service in Aliphatic Hydrocarbons	Acceptable		
Service in Aromatic Hydrocarbons	Acceptable		
Service in Chlorinated Solvents	Limited		
Service in Ethers	Acceptable		
Service in Ketones	Acceptable		
Service in Strong Acids	Unacceptable		
Service in Strong Alkalies	Unacceptable		
Service in Sunlight	Limited		
Service in Weak Acids	Limited		
Service in Weak Alkalies	Acceptable		

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