

DUPONT Delrin® 500T

Toughened Medium Viscosity Acetal Homopolymer
Information provided by DuPont; Delrin was sold by DuPont in 2023.

Physical Properties	Metric	English	Comments
Density	1.38 g/cc	0.0499 lb/in ³	ISO 1183
Melt Density	1.18 g/cc @Temperature 205 °C	0.0426 lb/in ³ @Temperature 401 °F	
Water Absorption	0.30 % @Time 86400 sec	0.30 % @Time 24.0 hour	Immersion; Sim. to ISO 62
	0.82 % @Thickness 2.00 mm	0.82 % @Thickness 0.0787 in	Sim. to ISO 62
Moisture Absorption	0.210 % @Thickness 2.00 mm	0.210 % @Thickness 0.0787 in	Sim. to ISO 62
Linear Mold Shrinkage, Flow	0.015 cm/cm	0.015 in/in	ISO 294-4, 2577
Linear Mold Shrinkage, Transverse	0.016 cm/cm	0.016 in/in	ISO 294-4, 2577
Melt Flow	10 g/10 min @Load 2.16 kg, Temperature 190 °C	10 g/10 min @Load 4.76 lb, Temperature 374 °F	cm ³ /10min Volumetric; ISO 1133
	12 g/10 min @Load 2.16 kg, Temperature 190 °C	12 g/10 min @Load 4.76 lb, Temperature 374 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	79	79	ISO 2039-2
Hardness, Rockwell R	117	117	ISO 2039-2
Ball Indentation Hardness	155 MPa	22500 psi	H 961/30; ISO 2039-1
Tensile Strength, Yield	55.0 MPa	7980 psi	ISO 527-1/-2
Elongation at Break	35 %	35 %	Nominal; ISO 527-1/-2
Elongation at Yield	18 %	18 %	ISO 527-1/-2
Tensile Modulus	2.30 GPa	334 ksi	ISO 527-1/-2
Flexural Strength	60.0 MPa @Strain 3.5 %	8700 psi @Strain 3.5 %	ISO 178
Flexural Modulus	2.10 GPa	305 ksi	ISO 178
Poissons Ratio	0.39	0.39	
Izod Impact, Notched (ISO)	9.00 kJ/m ² @Temperature -40.0 °C	4.28 ft-lb/in ² @Temperature -40.0 °F	ISO 180/1A
	14.0 kJ/m ² @Temperature 23.0 °C	6.66 ft-lb/in ² @Temperature 73.4 °F	ISO 180/1A
Charpy Impact Unnotched	33.0 J/cm ² @Temperature -30.0 °C	157 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eU
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	ISO 179/1eU
Charpy Impact, Notched	0.850 J/cm ² @Temperature -30.0 °C	4.04 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eA
	1.30 J/cm ² @Temperature 23.0 °C	6.19 ft-lb/in ² @Temperature 73.4 °F	ISO 179/1eA
Tensile Creep Modulus, 1 hour	2300 MPa	334000 psi	1h; ISO 899-1
Tensile Creep Modulus, 1000 hours	1200 MPa	174000 psi	1000h; ISO 899-1

Electrical Properties	Metric	English	Comments
Volume Resistivity	$\geq 1.00 \times 10^{15}$ ohm-cm	$\geq 1.00 \times 10^{15}$ ohm-cm	IEC 62631-3-1
Surface Resistance	1.00×10^{15} ohm	1.00×10^{15} ohm	IEC 62631-3-2
Dielectric Constant	3.6	3.6	IEC 62631-2-1
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
	3.6	3.6	IEC 62631-2-1
	@Frequency 100 Hz	@Frequency 100 Hz	
Comparative Tracking Index	600 V	600 V	IEC 60112

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	130 $\mu\text{m}/\text{m}^\circ\text{C}$	72.2 $\mu\text{in}/\text{in}^\circ\text{F}$	ISO 11359-1/-2
CTE, linear, Transverse to Flow	120 $\mu\text{m}/\text{m}^\circ\text{C}$	66.7 $\mu\text{in}/\text{in}^\circ\text{F}$	ISO 11359-1/-2
Melting Point	178 $^\circ\text{C}$	352 $^\circ\text{F}$	10 $^\circ\text{C}/\text{min}$; ISO 11357-1/-3
Deflection Temperature at 0.46 MPa (66 psi)	145 $^\circ\text{C}$	293 $^\circ\text{F}$	ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	80.0 $^\circ\text{C}$	176 $^\circ\text{F}$	ISO 75-1/-2
Vicat Softening Point	140 $^\circ\text{C}$	284 $^\circ\text{F}$	50 $^\circ\text{C}/\text{h}$, 50N; ISO 306
	172 $^\circ\text{C}$	342 $^\circ\text{F}$	50 $^\circ\text{C}/\text{h}$ 10N; ISO 306
Flammability, UL94	HB	HB	IEC 60695-11-10
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	HB	HB	IEC 60695-11-10
	@Thickness 1.50 mm	@Thickness 0.0591 in	
Flame Spread	45.0 mm/min @Thickness 1.00 mm	1.77 in/min @Thickness 0.0394 in	ISO 3795 (FMVSS 302)

Processing Properties	Metric	English	Comments
Melt Temperature	205 $^\circ\text{C}$	401 $^\circ\text{F}$	Optimum, Injection
	200 - 210 $^\circ\text{C}$	392 - 410 $^\circ\text{F}$	Range, Injection
Mold Temperature	50.0 $^\circ\text{C}$	122 $^\circ\text{F}$	Optimum, Injection
	40.0 - 60.0 $^\circ\text{C}$	104 - 140 $^\circ\text{F}$	Injection
Drying Temperature	80.0 $^\circ\text{C}$	176 $^\circ\text{F}$	Injection
Dry Time	4.00 - 8.00 hour	4.00 - 8.00 hour	Injection, Dehumidified Dryer
Moisture Content	≤ 0.050 %	≤ 0.050 %	Injection
Hold Pressure	60.0 - 80.0 MPa	8700 - 11600 psi	Injection
	80.0 MPa	11600 psi	Injection
Annealing Temperature	160 $^\circ\text{C}$	320 $^\circ\text{F}$	Optional; 2 mm/min; Injection