

DUPONT Delrin[®] 500P

Medium Viscosity Acetal Homopolymer with Improved Processing
Information provided by DuPont; Delrin was sold by DuPont in 2023.

Physical Properties	Metric	English	Comments
Density	1.42 g/cc	0.0513 lb/in ³	ISO 1183
Melt Density	1.19 g/cc @Temperature 215 °C	0.0430 lb/in ³ @Temperature 419 °F	
Water Absorption	1.3 % @Thickness 2.00 mm	1.3 % @Thickness 0.0787 in	Sim. to ISO 62
Moisture Absorption	0.200 % @Thickness 2.00 mm	0.200 % @Thickness 0.0787 in	Sim. to ISO 62
Linear Mold Shrinkage, Flow	0.020 cm/cm	0.020 in/in	ISO 294-4, 2577
Linear Mold Shrinkage, Transverse	0.019 cm/cm	0.019 in/in	ISO 294-4, 2577
Melt Flow	13 g/10 min @Load 2.16 kg, Temperature 190 °C	13 g/10 min @Load 4.76 lb, Temperature 374 °F	cm ³ /10min Volumetric; ISO 1133
	15 g/10 min @Load 2.16 kg, Temperature 190 °C	15 g/10 min @Load 4.76 lb, Temperature 374 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Puncture Resistance	2000 N @Temperature 23.0 °C	450 lb (f) @Temperature 73.4 °F	maximum force; ISO 6603-2
Hardness, Rockwell M	92	92	ISO 2039-2
Hardness, Rockwell R	120	120	ISO 2039-2
Ball Indentation Hardness	170 MPa	24700 psi	H 961/30; ISO 2039-1
	192 MPa	27800 psi	H 358/30; ISO 2039-1
Tensile Strength, Yield	71.0 MPa	10300 psi	ISO 527-1/-2
Elongation at Break	30 %	30 %	Nominal; ISO 527-1/-2
Elongation at Yield	17 %	17 %	ISO 527-1/-2
Tensile Modulus	3.10 GPa	450 ksi	ISO 527-1/-2
Flexural Strength	80.0 MPa @Strain 3.5 %	11600 psi @Strain 3.5 %	ISO 178
Flexural Modulus	3.00 GPa	435 ksi	ISO 178
Poissons Ratio	0.37	0.37	
Izod Impact, Notched (ISO)	8.00 kJ/m ² @Temperature -30.0 °C	3.81 ft-lb/in ² @Temperature -22.0 °F	ISO 180/1A
	9.00 kJ/m ² @Temperature 23.0 °C	4.28 ft-lb/in ² @Temperature 73.4 °F	ISO 180/1A
Izod Impact, Unnotched (ISO)	250 kJ/m ² @Temperature -30.0 °C	119 ft-lb/in ² @Temperature -22.0 °F	ISO 180/1U
	280 kJ/m ² @Temperature 23.0 °C	133 ft-lb/in ² @Temperature 73.4 °F	ISO 180/1U
Charpy Impact Unnotched	28.0 J/cm ² @Temperature -30.0 °C	133 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eU
	30.0 J/cm ² @Temperature 23.0 °C	143 ft-lb/in ² @Temperature 73.4 °F	ISO 179/1eU

Charpy Impact, Notched	0.800 J/cm ² @Temperature -40.0 °C	3.81 ft-lb/in ² @Temperature -40.0 °F	ISO 179/1eA
	0.800 J/cm ² @Temperature -30.0 °C	3.81 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eA
	0.900 J/cm ² @Temperature 23.0 °C	4.28 ft-lb/in ² @Temperature 73.4 °F	ISO 179/1eA
Puncture Energy	3.00 J @Temperature 23.0 °C	2.21 ft-lb @Temperature 73.4 °F	ISO 6603-2
Tensile Creep Modulus, 1 hour	2800 MPa	406000 psi	1h; ISO 899-1
Tensile Creep Modulus, 1000 hours	1600 MPa	232000 psi	1000h; ISO 899-1

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.00e+14 ohm-cm	2.00e+14 ohm-cm	IEC 62631-3-1
Surface Resistance	4.00e+14 ohm	4.00e+14 ohm	IEC 62631-3-2
Dielectric Constant	3.1 @Frequency 2.50e+9 Hz	3.1 @Frequency 2.50e+9 Hz	printed circuits and boards; IEC 61189-2-721
	3.8 @Frequency 1e+6 Hz	3.8 @Frequency 1e+6 Hz	IEC 62631-2-1
	3.8 @Frequency 100 Hz	3.8 @Frequency 100 Hz	IEC 62631-2-1
Dielectric Strength	44.0 kV/mm	1120 kV/in	IEC 60243-1
Dissipation Factor	0.0090 @Frequency 1e+6 Hz	0.0090 @Frequency 1e+6 Hz	IEC 62631-2-1
	0.0090 @Frequency 100 Hz	0.0090 @Frequency 100 Hz	IEC 62631-2-1
	0.043 @Frequency 2.50e+9 Hz	0.043 @Frequency 2.50e+9 Hz	printed circuits and boards; IEC 61189-2-721
Comparative Tracking Index	600 V	600 V	IEC 60112

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	100 µm/m-°C	55.6 µin/in-°F	ISO 11359-1/-2
CTE, linear, Transverse to Flow	100 µm/m-°C	55.6 µin/in-°F	ISO 11359-1/-2
Thermal Conductivity	0.240 W/m-K @Temperature 215 °C	1.67 BTU-in/hr-ft ² -°F @Temperature 419 °F	Melt
Melting Point	178 °C	352 °F	10°C/min; ISO 11357-1/-3
Hot Ball Pressure Test	165 °C	329 °F	IEC 60695-10-2
Deflection Temperature at 0.46 MPa (66 psi)	160 °C	320 °F	ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	93.0 °C	199 °F	ISO 75-1/-2

	110 °C	230 °F	Annealed; ISO 75-1/-2
Vicat Softening Point	155 °C	311 °F	50°C/h, 50N; ISO 306
Flammability, UL94	HB @Thickness 0.800 mm	HB @Thickness 0.0315 in	IEC 60695-11-10
	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	IEC 60695-11-10
Flame Spread	20.0 mm/min @Thickness 1.00 mm	0.787 in/min @Thickness 0.0394 in	ISO 3795 (FMVSS 302)
Oxygen Index	22 %	22 %	ISO 4589-1/-2

Processing Properties	Metric	English	Comments
Melt Temperature	215 °C	419 °F	Optimum, Injection
	210 - 220 °C	410 - 428 °F	Range, Injection
Mold Temperature	90.0 °C	194 °F	Optimum, Injection
	80.0 - 100 °C	176 - 212 °F	Injection
Drying Temperature	80.0 °C	176 °F	Injection
Dry Time	2.00 - 4.00 hour	2.00 - 4.00 hour	Injection, Dehumidified Dryer
Moisture Content	<= 0.20 %	<= 0.20 %	Injection
Hold Pressure	80.0 - 100 MPa	11600 - 14500 psi	Injection
	100 MPa	14500 psi	Injection
Annealing Temperature	160 °C	320 °F	Optional; 2 mm/min; Injection

Descriptive Properties		
Additives	Release agent	
Annealing time (min/mm)	30	Optional, Injection
Drying Recommended	yes	Injection
Eff. thermal diffusivity (m ² /s)	9E-08	
Emissions (mg/kg)	<8	VDA 275
FMVSS Class	B	ISO 3795 (FMVSS 302)
Fogging (%)	90	F-value (refraction); ISO 6452
Fogging (mg)	0.35	G-value (condensate); ISO 6452
Max. screw tangential speed (m/s)	0.3	Injection
Part Marking Code	>POM<	ISO 11469
Polymer	POM	
Processing Hold Pressure Time (s/mm)	8	Injection
Resin Identification	POM	ISO 1043