

DUPONT Delrin® 911P

Delrin® 911P is a low viscosity acetal with the improved thermal stability and modifications for more precise molding (reduced warpage, less shrinkage, fewer voids). It has higher strength and modulus than Delrin® 900P.

Physical Properties	Metric	English	Comments
Specific Gravity	1.42 g/cc	1.42 g/cc	ASTM D 792
Density	1.42 g/cc	0.0513 lb/in ³	ISO 1183
Water Absorption	0.28 %	0.28 %	Immersion 24h; ASTM D 570
Moisture Absorption at Equilibrium	0.20 %	0.20 %	50% RH; ASTM D 570
	0.20 %	0.20 %	50% RH; ISO 62, Similar to
Water Absorption at Saturation	0.97 %	0.97 %	ASTM D 570
	1.0 %	1.0 %	Immersed; ISO 62, Similar to
Linear Mold Shrinkage, Flow	0.017 - 0.020 cm/cm	0.017 - 0.020 in/in	24h; ISO 294-4
	0.017 cm/cm @Thickness 2.00 mm	0.017 in/in @Thickness 0.0787 in	ISO 294-4
	0.014 - 0.017 cm/cm @Thickness 3.17 mm, Time 86400 sec	0.014 - 0.017 in/in @Thickness 0.125 in, Time 24.0 hour	ASTM D955
Linear Mold Shrinkage, Transverse	0.017 - 0.020 cm/cm	0.017 - 0.020 in/in	Normal, 24h; ISO 294-4
	0.017 cm/cm @Thickness 2.00 mm	0.017 in/in @Thickness 0.0787 in	ISO 294-4
	0.015 - 0.018 cm/cm @Thickness 3.17 mm, Time 86400 sec	0.015 - 0.018 in/in @Thickness 0.125 in, Time 24.0 hour	ASTM D955
Melt Flow	11 g/10 min @Load 1.05 kg, Temperature 190 °C	11 g/10 min @Load 2.31 lb, Temperature 374 °F	ASTM D 1238
	21 g/10 min @Load 2.16 kg, Temperature 190 °C	21 g/10 min @Load 4.76 lb, Temperature 374 °F	cm ³ /10 min; ISO 1133
	25 g/10 min @Load 2.16 kg, Temperature 190 °C	25 g/10 min @Load 4.76 lb, Temperature 374 °F	ISO 1133
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	92	92	ISO 2039/2
Hardness, Rockwell R	120	120	ISO 2039/2
Tensile Strength, Yield	73.0 MPa @Temperature 23.0 °C	10600 psi @Temperature 73.4 °F	5mm/min (0.2in/min); ASTM D 638
	74.0 MPa @Temperature 23.0 °C	10700 psi @Temperature 73.4 °F	ISO 527
Elongation at Break	20 %	20 %	ISO 527
	25 %	25 %	ISO 527
	20 % @Temperature 23.0 °C	20 % @Temperature 73.4 °F	5mm/min (0.2in/min); ASTM D 638
Elongation at Yield	9.0 %	9.0 %	ISO 527
	10 % @Temperature 23.0 °C	10 % @Temperature 73.4 °F	5mm/min (0.2in/min); ASTM D 638

Tensile Modulus	3.40 GPa	493 ksi	ISO 527
	3.30 GPa @Temperature 23.0 °C	479 ksi @Temperature 73.4 °F	5mm/min (0.2in/min); ASTM D 638
Flexural Yield Strength	104 MPa	15100 psi	@ 5% Strain; ASTM D 790
Flexural Modulus	3.20 GPa @Temperature 23.0 °C	464 ksi @Temperature 73.4 °F	ISO 178
	3.38 GPa @Temperature 23.0 °C	490 ksi @Temperature 73.4 °F	ASTM D 790
Izod Impact, Notched	0.590 J/cm @Temperature 23.0 °C	1.11 ft-lb/in @Temperature 73.4 °F	ASTM D 256
Izod Impact, Unnotched	21.1 J/cm @Temperature 23.0 °C	39.5 ft-lb/in @Temperature 73.4 °F	ASTM D 4812
Izod Impact, Notched (ISO)	7.00 kJ/m ² @Temperature -40.0 °C	3.33 ft-lb/in ² @Temperature -40.0 °F	ISO 180/1A
	8.00 kJ/m ² @Temperature 23.0 °C	3.81 ft-lb/in ² @Temperature 73.4 °F	ISO 180/1A
Charpy Impact Unnotched	18.0 J/cm ² @Temperature -30.0 °C	85.7 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eU
	18.0 J/cm ² @Temperature 23.0 °C	85.7 ft-lb/in ² @Temperature 73.4 °F	ISO 179/1eU
Charpy Impact, Notched	0.600 J/cm ² @Temperature -30.0 °C	2.86 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eA
	0.700 J/cm ² @Temperature 23.0 °C	3.33 ft-lb/in ² @Temperature 73.4 °F	ISO 179/1eA
Tensile Creep Modulus, 1 hour	3000 MPa	435000 psi	ISO 899
Tensile Creep Modulus, 1000 hours	1700 MPa	247000 psi	ISO 899

Electrical Properties	Metric	English	Comments
Volume Resistivity	5.00e+14 ohm-cm	5.00e+14 ohm-cm	ASTM D 257
Surface Resistance	6.00e+15 ohm	6.00e+15 ohm	ASTM D 257
Dielectric Constant	3.6 @Frequency 1e+6 Hz, Temperature 23.0 °C	3.6 @Frequency 1e+6 Hz, Temperature 73.4 °F	ASTM D 150
Dielectric Strength	18.0 kV/mm @Thickness 3.17 mm	457 kV/in @Thickness 0.125 in	Short time; ASTM D149
Dissipation Factor	0.0050 @Frequency 1e+6 Hz	0.0050 @Frequency 1e+6 Hz	ASTM D 150
Comparative Tracking Index	600 V @Thickness 3.00 mm	600 V @Thickness 0.118 in	IEC 60112 UL 746A

Thermal Properties	Metric	English	Comments
CTE, linear	117 µm/m-°C @Temperature 23.0 - 55.0 °C	65.0 µin/in-°F @Temperature 73.4 - 131 °F	ISO 11359-1/-2
	120 µm/m-°C @Temperature 23.0 - 55.0 °C	66.7 µin/in-°F @Temperature 73.4 - 131 °F	ASTM E 831
CTE, linear, Transverse to Flow	117 µm/m-°C @Temperature 23.0 - 55.0 °C	65.0 µin/in-°F @Temperature 73.4 - 131 °F	ASTM E 831

	120 $\mu\text{m}/\text{m}^{\circ}\text{C}$ @Temperature 23.0 - 55.0 $^{\circ}\text{C}$	66.7 $\mu\text{in}/\text{in}^{\circ}\text{F}$ @Temperature 73.4 - 131 $^{\circ}\text{F}$	ISO 11359-1/-2
Melting Point	178 $^{\circ}\text{C}$	352 $^{\circ}\text{F}$	ASTM D 3418
	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)	165 $^{\circ}\text{C}$	329 $^{\circ}\text{F}$	ISO 75-1/-2
	170 $^{\circ}\text{C}$	338 $^{\circ}\text{F}$	Not Annealed; ASTM D 648
Deflection Temperature at 1.8 MPa (264 psi)	108 $^{\circ}\text{C}$	226 $^{\circ}\text{F}$	ISO 75-1/-2
	115 $^{\circ}\text{C}$	239 $^{\circ}\text{F}$	Annealed; ISO 75-1/-2
	122 $^{\circ}\text{C}$	252 $^{\circ}\text{F}$	Not Annealed; ASTM D 648
UL RTI, Electrical	50.0 $^{\circ}\text{C}$ @Thickness 0.750 mm	122 $^{\circ}\text{F}$ @Thickness 0.0295 in	UL 746B
	110 $^{\circ}\text{C}$ @Thickness 3.00 mm	230 $^{\circ}\text{F}$ @Thickness 0.118 in	UL 746B
	110 $^{\circ}\text{C}$ @Thickness 1.50 mm	230 $^{\circ}\text{F}$ @Thickness 0.0591 in	UL 746B
UL RTI, Mechanical with Impact	50.0 $^{\circ}\text{C}$ @Thickness 0.750 mm	122 $^{\circ}\text{F}$ @Thickness 0.0295 in	UL 746B
	85.0 $^{\circ}\text{C}$ @Thickness 1.50 mm	185 $^{\circ}\text{F}$ @Thickness 0.0591 in	UL 746B
	90.0 $^{\circ}\text{C}$ @Thickness 3.00 mm	194 $^{\circ}\text{F}$ @Thickness 0.118 in	UL 746B
UL RTI, Mechanical without Impact	50.0 $^{\circ}\text{C}$ @Thickness 0.750 mm	122 $^{\circ}\text{F}$ @Thickness 0.0295 in	UL 746B
	90.0 $^{\circ}\text{C}$ @Thickness 1.50 mm	194 $^{\circ}\text{F}$ @Thickness 0.0591 in	UL 746B
	95.0 $^{\circ}\text{C}$ @Thickness 3.00 mm	203 $^{\circ}\text{F}$ @Thickness 0.118 in	UL 746B
Flammability, UL94	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	UL94
	HB @Thickness 0.750 mm	HB @Thickness 0.0295 in	UL94
	HB @Thickness 0.750 mm	HB @Thickness 0.0295 in	IEC 60695-11-10
	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	IEC 60695-11-10
	HB @Thickness 3.00 mm	HB @Thickness 0.118 in	UL94
	HB @Thickness 3.00 mm	HB @Thickness 0.118 in	IEC 60695-11-10
Oxygen Index	19 %	19 %	ISO 4589-1/-2