

DuPont Performance Polymers Delrin® 500AL NC010 Acetal Homopolymer (Unverified Data**)

Category : Polymer , Thermoplastic , Acetal (POM)

Material Notes:

Delrin® 500AL is a medium viscosity acetal homopolymer, with an advanced system of lubrication for applications requiring low wear and/or coefficient of friction against steel, itself or other plastics. Information provided by DuPont Performance Polymers

Order this product through the following link:

http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Delrin-500AL-NC010-Acetal-Homopolymer-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.39 g/cc	1.39 g/cc	ASTM D792
Density	1.39 g/cc	0.0502 lb/in ³	ISO 1183
Linear Mold Shrinkage	0.017 - 0.020 cm/cm	0.017 - 0.020 in/in	Flow, 24h; ASTM D955
	@Thickness 3.20 mm	@Thickness 0.126 in	
	0.017 - 0.020 cm/cm	0.017 - 0.020 in/in	Transverse, 24h; ASTM D955
	@Thickness 3.20 mm	@Thickness 0.126 in	
Linear Mold Shrinkage, Flow	0.018 cm/cm	0.018 in/in	ISO 294-4
	@Thickness 2.00 mm	@Thickness 0.0787 in	
	0.019 cm/cm	0.019 in/in	ISO 294-4
	@Thickness 4.00 mm	@Thickness 0.157 in	
Linear Mold Shrinkage, Transverse	0.017 cm/cm	0.017 in/in	ISO 294-4
	@Thickness 2.00 mm	@Thickness 0.0787 in	
	0.019 cm/cm	0.019 in/in	ISO 294-4
	@Thickness 4.00 mm	@Thickness 0.157 in	
Melt Flow	6.0 g/10 min	6.0 g/10 min	ASTM D1238
	@Load 1.05 kg, Temperature 190 °C	@Load 2.31 lb, Temperature 374 °F	
	14 g/10 min	14 g/10 min	ISO 1133
	@Load 2.16 kg, Temperature 190 °C	@Load 4.76 lb, Temperature 374 °F	
Melt Index of Compound	12 g/10 min	12 g/10 min	cm ³ /10 min; ISO 1133
	@Load 2.16 kg, Temperature 190 °C	@Load 4.76 lb, Temperature 374 °F	

Mechanical Properties	Metric	English	Comments
Tensile Strength	66.0 MPa	9570 psi	5mm/min (0.2in/min); ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	65.0 MPa	9430 psi	ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	66.0 MPa	9570 psi	5mm/min (0.2in/min); ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	23 %	23 %	nominal; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	30 %	30 %	5mm/min (0.2in/min); ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	35 %	35 %	50mm/min; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Yield	10 %	10 %	5mm/min (0.2in/min); ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	11 %	11 %	ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Modulus	3.00 GPa	435 ksi	ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	3.17 GPa	460 ksi	5mm/min (0.2in/min); ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Flexural Strength	88.0 MPa	12800 psi	ASTM D790
	@Strain 5.00 %, Temperature 23.0 °C	@Strain 5.00 %, Temperature 73.4 °F	
Flexural Modulus	2.80 GPa	406 ksi	ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	2.97 GPa	431 ksi	ASTM D790
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Notched	0.580 J/cm	1.09 ft-lb/in	ASTM D256
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Notched (ISO)	5.00 kJ/m ²	2.38 ft-lb/in ²	ISO 180/1A

Mechanical Properties	@Temperature -40.0 °C Metric	@Temperature -40.0 °F English	Comments
	6.00 kJ/m ²	2.86 ft-lb/in ²	ISO 180/1A
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact Unnotched	13.0 J/cm ²	61.9 ft-lb/in ²	ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	16.0 J/cm ²	76.1 ft-lb/in ²	ISO 179/1eU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	0.600 J/cm ²	2.86 ft-lb/in ²	ISO 179/1eA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	0.700 J/cm ²	3.33 ft-lb/in ²	ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Creep Modulus, 1 hour	2400 MPa	348000 psi	ISO 899
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Creep Modulus, 1000 hours	1600 MPa	232000 psi	ISO 899
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	500 µm/m-°C	278 µin/in-°F	ASTM E 831
	@Temperature 23.0 - 55.0 °C	@Temperature 73.4 - 131 °F	
	500 µm/m-°C	278 µin/in-°F	ISO 11359-1/-2
	@Temperature -40.0 - 23.0 °C	@Temperature -40.0 - 73.4 °F	
	500 µm/m-°C	278 µin/in-°F	ISO 11359-1/-2
	@Temperature 23.0 - 55.0 °C	@Temperature 73.4 - 131 °F	
	500 µm/m-°C	278 µin/in-°F	ISO 11359-1/-2
	@Temperature 55.0 - 100 °C	@Temperature 131 - 212 °F	
CTE, linear, Transverse to Flow	100 µm/m-°C	55.6 µin/in-°F	ISO 11359-1/-2
	@Temperature -40.0 - 23.0 °C	@Temperature -40.0 - 73.4 °F	
	116 µm/m-°C	64.4 µin/in-°F	ASTM E 831
	@Temperature 23.0 - 55.0 °C	@Temperature 73.4 - 131 °F	

Thermal Properties	Metric °C/mm-°C	English °F/in-°F	Comments
	@Temperature 23.0 - 55.0 °C	@Temperature 73.4 - 131 °F	ISO 11359-1/-2
	170 µm/m-°C	94.4 µin/in-°F	
	@Temperature 55.0 - 100 °C	@Temperature 131 - 212 °F	ISO 11359-1/-2
Melting Point	178 °C	352 °F	10°C/min; ISO 11357-1/-3
	178 °C	352 °F	ASTM D3418
Deflection Temperature at 0.46 MPa (66 psi)	164 °C	327 °F	ISO 75-1/-2
	169 °C	336 °F	Not Annealed; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	97.0 °C	207 °F	ISO 75-1/-2
	108 °C	226 °F	Not Annealed; ASTM D648
UL RTI, Electrical	50.0 °C	122 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	110 °C	230 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	110 °C	230 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical with Impact	50.0 °C	122 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	85.0 °C	185 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	90.0 °C	194 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical without Impact	50.0 °C	122 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	90.0 °C	194 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	95.0 °C	203 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	

Thermal Properties	HB Metric	HB English	Comments 11-10
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	HB	HB	IEC 60695-11-10
	@Thickness 3.00 mm	@Thickness 0.118 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	7.00e+14 ohm-cm @Temperature 23.0 °C	7.00e+14 ohm-cm @Temperature 73.4 °F	ASTM D257
Surface Resistance	4.00e+15 ohm @Temperature 23.0 °C	4.00e+15 ohm @Temperature 73.4 °F	ASTM D257
Dielectric Constant	3.6 @Frequency 1.00e+6 Hz, Temperature 23.0 °C	3.6 @Frequency 1.00e+6 Hz, Temperature 73.4 °F	ASTM D150
Dielectric Strength	17.7 kV/mm @Thickness 3.20 mm, Temperature 23.0 °C	450 kV/in @Thickness 0.126 in, Temperature 73.4 °F	Short Time; ASTM D149
Dissipation Factor	0.0060 @Frequency 1.00e+6 Hz, Temperature 23.0 °C	0.0060 @Frequency 1.00e+6 Hz, Temperature 73.4 °F	ASTM D150
Comparative Tracking Index	600 V @Thickness 3.00 mm, Temperature 23.0 °C	600 V @Thickness 0.118 in, Temperature 73.4 °F	UL 746A

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