

DuPont Performance Polymers Delrin® 311DP NC010 Acetal Homopolymer (Unverified Data**)

Category : Polymer , Thermoplastic , Acetal (POM)

Material Notes:

Delrin® 311DP is a medium-high viscosity acetal homopolymer with enhanced crystallization and balance of part performance and ease of processing. It has improved dimensional stability, high strength and creep resistance, and low volatile emissions. Information provided by DuPont Performance Polymers

Order this product through the following link:

http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Delrin-311DP-NC010-Acetal-Homopolymer-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Density	1.42 g/cc	0.0513 lb/in ³	ISO 1183
Water Absorption	0.20 %	0.20 %	Equilibrium 50%RH; ISO 62, Similar to
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.40 %	0.40 %	Immersion 24h; ISO 62, Similar to
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.90 %	0.90 %	Saturation, immersed; ISO 62, Similar to
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Linear Mold Shrinkage, Flow	0.019 cm/cm	0.019 in/in	ISO 294-4
	@Thickness 2.00 mm	@Thickness 0.0787 in	
Linear Mold Shrinkage, Transverse	0.018 cm/cm	0.018 in/in	ISO 294-4
	@Thickness 2.00 mm	@Thickness 0.0787 in	
Melt Flow	7.0 g/10 min	7.0 g/10 min	ISO 1133
	@Load 2.16 kg, Temperature 190 °C	@Load 4.76 lb, Temperature 374 °F	
Melt Index of Compound	6.0 g/10 min	6.0 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, Yield	73.0 MPa	10600 psi	ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	35 %	35 %	nominal; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Mechanical Properties	Metric	English	Comments
Elongation at Yield	@Temperature 23.0 °C	@Temperature 73.4 °F	ISO 527
Tensile Modulus	3.30 GPa @Temperature 23.0 °C	479 ksi @Temperature 73.4 °F	ISO 527
Flexural Strength	86.0 MPa @Strain 3.50 %, Temperature 23.0 °C	12500 psi @Strain 3.50 %, Temperature 73.4 °F	ISO 178
Flexural Modulus	1.10 GPa @Temperature 100 °C	160 ksi @Temperature 212 °F	ISO 178
	3.10 GPa @Temperature 23.0 °C	450 ksi @Temperature 73.4 °F	ISO 178
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
	10.0 kJ/m ² @Temperature 23.0 °C	4.76 ft-lb/in ² @Temperature 73.4 °F	ISO 180/1A
Charpy Impact Unnotched	25.0 J/cm ² @Temperature -30.0 °C	119 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
	0.900 J/cm ² @Temperature -30.0 °C	4.28 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eA
	1.00 J/cm ² @Temperature 23.0 °C	4.76 ft-lb/in ² @Temperature 73.4 °F	ISO 179/1eA

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	500 µm/m-°C @Temperature -40.0 - 23.0 °C	278 µin/in-°F @Temperature -40.0 - 73.4 °F	ASTM E 831
	500 µm/m-°C @Temperature 23.0 - 55.0 °C	278 µin/in-°F @Temperature 73.4 - 131 °F	ASTM E 831

Thermal Properties	Metric /m-°C	English /in-°F	Comments
	@Temperature 55.0 - 100 °C	@Temperature 131 - 212 °F	ASTME 831
	500 µm/m-°C	278 µin/in-°F	
	@Temperature -40.0 - 23.0 °C	@Temperature -40.0 - 73.4 °F	ISO 11359-1/-2
	500 µm/m-°C	278 µin/in-°F	
	@Temperature 23.0 - 55.0 °C	@Temperature 73.4 - 131 °F	ISO 11359-1/-2
	500 µm/m-°C	278 µin/in-°F	
	@Temperature 55.0 - 100 °C	@Temperature 131 - 212 °F	ISO 11359-1/-2
CTE, linear, Transverse to Flow	95.0 µm/m-°C	52.8 µin/in-°F	
	@Temperature -40.0 - 23.0 °C	@Temperature -40.0 - 73.4 °F	ISO 11359-1/-2
	95.0 µm/m-°C	52.8 µin/in-°F	
	@Temperature -40.0 - 23.0 °C	@Temperature -40.0 - 73.4 °F	ASTME 831
	110 µm/m-°C	61.1 µin/in-°F	
	@Temperature 23.0 - 55.0 °C	@Temperature 73.4 - 131 °F	ISO 11359-1/-2
	110 µm/m-°C	61.1 µin/in-°F	
	@Temperature 23.0 - 55.0 °C	@Temperature 73.4 - 131 °F	ASTME 831
	140 µm/m-°C	77.8 µin/in-°F	
	@Temperature 55.0 - 100 °C	@Temperature 131 - 212 °F	ISO 11359-1/-2
	148 µm/m-°C	82.2 µin/in-°F	
	@Temperature 55.0 - 100 °C	@Temperature 131 - 212 °F	ASTME 831
Melting Point	178 °C	352 °F	10°C/min; ISO 11357-1/-3
Deflection Temperature at 0.46 MPa (66 psi)	165 °C	329 °F	ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	103 °C	217 °F	ISO 75-1/-2
UL RTI, Electrical	50.0 °C	122 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	

Thermal Properties	110 °C Metric	230 °F English	Comments
	@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	
Flammability, UL94	HB	HB	IEC 60695-11-10
	@Thickness 3.00 mm	@Thickness 0.118 in	
	HB	HB	UL94
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	HB	HB	UL94
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	HB	HB	UL94
	@Thickness 3.00 mm	@Thickness 0.118 in	
	HB	HB	IEC 60695-11-10
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	HB	HB	IEC 60695-11-10
	@Thickness 0.750 mm	@Thickness 0.0295 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+15 ohm-cm	1.00e+15 ohm-cm	IEC 60093

Electrical Properties	@Temperature 23.0 °C Metric	@Temperature 73.4 °F English	Comments
Surface Resistance	>= 1.00e+15 ohm @Temperature 23.0 °C	>= 1.00e+15 ohm @Temperature 73.4 °F	IEC 60093
Dielectric Constant	3.8 @Frequency 1.00e+6 Hz, Temperature 23.0 °C	3.8 @Frequency 1.00e+6 Hz, Temperature 73.4 °F	IEC 60250
	3.8 @Frequency 100 Hz, Temperature 23.0 °C	3.8 @Frequency 100 Hz, Temperature 73.4 °F	IEC 60250
Dissipation Factor	0.0050 @Frequency 1.00e+6 Hz, Temperature 23.0 °C	0.0050 @Frequency 1.00e+6 Hz, Temperature 73.4 °F	IEC 60250
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

Processing Properties	Metric	English	Comments
Melt Temperature	215 °C	419 °F	Optimum; Injection Molding
	210 - 220 °C	410 - 428 °F	Injection Molding
Mold Temperature	90.0 °C	194 °F	optimum; Injection Molding
	80.0 - 100 °C	176 - 212 °F	Injection Molding
Drying Temperature	80.0 °C	176 °F	Injection Molding
Dry Time	2.00 - 4.00 hour	2.00 - 4.00 hour	Injection Molding
Moisture Content	<= 0.20 %	<= 0.20 %	Injection Molding

Descriptive Properties	Value	Comments
Appearance	Natural Color	
Drying Recommended	Not normally required unless moisture content of resin exceeds recommended level	
Extrudable - Cast Film	Yes	
Extrudable - Sheet	Yes	
Extrudable - Tubing	Yes	
Extrudable - Wire and Cable	Yes	

Descriptive Properties	Value	Resistance, Good	Comments
	Dimensional Stability, Good		
	Fatigue Resistant		
	Homopolymer		
	Impact Resistance, Good		

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