

## DuPont Performance Polymers Delrin® 511DP NC010 Acetal (POM) (Unverified Data\*\*)

Category : Polymer , Thermoplastic , Acetal (POM) , Acetal Homopolymer, Unreinforced

### Material Notes:

Nucleated Medium Viscosity Acetal Homopolymer Delrin 511DP is a medium viscosity acetal homopolymer with improved thermal stability and modifications for more precise molding (reduced warpage less shrinkage fewer voids). Information provided by DuPont Performance Polymers

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_DuPont-Performance-Polymers-Delrin-511DP-NC010-Acetal-POM-nbspUnverified-Data.php](http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Delrin-511DP-NC010-Acetal-POM-nbspUnverified-Data.php)

Physical Properties	Metric	English	Comments
Density	1.42 g/cc	0.0513 lb/in <sup>3</sup>	ISO 1183
Water Absorption	0.90 % @Thickness 2.00 mm	0.90 % @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	0.019 cm/cm	0.019 in/in	ISO 294-4 2577
Linear Mold Shrinkage, Transverse	0.018 cm/cm	0.018 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 <sup>3</sup> /10min; ISO 1133
	14 g/10 min @Load 2.16 kg, Temperature 190 °C	14 g/10 min @Load 4.76 lb, Temperature 374 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Tensile Stress	15.4 MPa @Strain 0.500 %, Temperature 23.0 °C	2230 psi @Strain 0.500 %, Temperature 73.4 °F	ISO 11403-1 -2
	17.8 MPa @Strain 0.500 %, Temperature 0.000 °C	2580 psi @Strain 0.500 %, Temperature 32.0 °F	ISO 11403-1 -2
	21.0 MPa @Strain 0.500 %, Temperature -40.0 °C	3050 psi @Strain 0.500 %, Temperature -40.0 °F	ISO 11403-1 -2
	50.3 MPa	7300 psi	

Mechanical Properties	Metric	English	Comments
	@Strain 2.20 %, Temperature 23.0 °C	@Strain 2.20 %, Temperature 73.4 °F	ISO 11403-1 -2
	56.4 MPa	8180 psi	
	@Strain 2.20 %, Temperature 0.000 °C	@Strain 2.20 %, Temperature 32.0 °F	ISO 11403-1 -2
	63.0 MPa	9140 psi	
	@Strain 3.80 %, Temperature 23.0 °C	@Strain 3.80 %, Temperature 73.4 °F	ISO 11403-1 -2
	67.8 MPa	9830 psi	
	@Strain 2.00 %, Temperature -40.0 °C	@Strain 2.00 %, Temperature -40.0 °F	ISO 11403-1 -2
	68.8 MPa	9980 psi	
	@Strain 6.00 %, Temperature 23.0 °C	@Strain 6.00 %, Temperature 73.4 °F	ISO 11403-1 -2
	70.7 MPa	10300 psi	
	@Strain 3.80 %, Temperature 0.000 °C	@Strain 3.80 %, Temperature 32.0 °F	ISO 11403-1 -2
	75.1 MPa	10900 psi	
	@Strain 5.00 %, Temperature 0.000 °C	@Strain 5.00 %, Temperature 32.0 °F	ISO 11403-1 -2
	88.3 MPa	12800 psi	
	@Strain 3.60 %, Temperature -40.0 °C	@Strain 3.60 %, Temperature -40.0 °F	ISO 11403-1 -2
	94.6 MPa	13700 psi	
	@Strain 5.00 %, Temperature -40.0 °C	@Strain 5.00 %, Temperature -40.0 °F	ISO 11403-1 -2
Tensile Strength, Yield	74.0 MPa	10700 psi	ISO 527-1/-2
Elongation at Break	25 %	25 %	Nominal; ISO 527-1/-2
Elongation at Yield	12 %	12 %	ISO 527-1/-2
Tensile Modulus	3.40 GPa	493 ksi	ISO 527-1/-2
Flexural Strength	87.0 MPa	12600 psi	
	@Strain 3.50 %	@Strain 3.50 %	ISO 178
Flexural Modulus	3.20 GPa	464 ksi	ISO 178
Secant Modulus	0.365 GPa	52.9 ksi	
	@Strain 8.00 %, Temperature 100 °C	@Strain 8.00 %, Temperature 212 °F	ISO 11403-1 -2

Mechanical Properties	Metric 0.575 GPa	English 83.4 ksi	Comments
	@Strain 4.80 %, Temperature 100 °C	@Strain 4.80 %, Temperature 212 °F	ISO 11403-1 -2
	<b>0.637 GPa</b>	<b>92.3 ksi</b>	
	@Strain 6.00 %, Temperature 80.0 °C	@Strain 6.00 %, Temperature 176 °F	ISO 11403-1 -2
	<b>0.747 GPa</b>	<b>108 ksi</b>	
	@Strain 3.20 %, Temperature 100 °C	@Strain 3.20 %, Temperature 212 °F	ISO 11403-1 -2
	<b>0.87875 GPa</b>	<b>127.45 ksi</b>	
	@Strain 8.00 %, Temperature 23.0 °C	@Strain 8.00 %, Temperature 73.4 °F	ISO 11403-1 -2
	<b>0.889 GPa</b>	<b>129 ksi</b>	
	@Strain 3.80 %, Temperature 80.0 °C	@Strain 3.80 %, Temperature 176 °F	ISO 11403-1 -2
	<b>0.975 GPa</b>	<b>141 ksi</b>	
	@Strain 1.60 %, Temperature 100 °C	@Strain 1.60 %, Temperature 212 °F	ISO 11403-1 -2
	<b>1.11 GPa</b>	<b>162 ksi</b>	
	@Strain 7.00 %, Temperature 0.000 °C	@Strain 7.00 %, Temperature 32.0 °F	ISO 11403-1 -2
	<b>1.15 GPa</b>	<b>167 ksi</b>	
	@Strain 0.400 %, Temperature 100 °C	@Strain 0.400 %, Temperature 212 °F	ISO 11403-1 -2
	<b>1.23 GPa</b>	<b>179 ksi</b>	
	@Strain 1.90 %, Temperature 80.0 °C	@Strain 1.90 %, Temperature 176 °F	ISO 11403-1 -2
	<b>1.38 GPa</b>	<b>201 ksi</b>	
	@Strain 7.00 %, Temperature -40.0 °C	@Strain 7.00 %, Temperature -40.0 °F	ISO 11403-1 -2
	<b>1.49 GPa</b>	<b>216 ksi</b>	
	@Strain 4.40 %, Temperature 23.0 °C	@Strain 4.40 %, Temperature 73.4 °F	ISO 11403-1 -2
	<b>1.60 GPa</b>	<b>232 ksi</b>	
	@Strain 0.400 %, Temperature 80.0 °C	@Strain 0.400 %, Temperature 176 °F	ISO 11403-1 -2
	<b>1.67 GPa</b>	<b>242 ksi</b>	
			ISO 11403-1 -2

Mechanical Properties	Metric @Strain 4.40 %, Temperature 0.000 °C	English @Strain 4.40 %, Temperature 32.0 °F	Comments
	2.23 GPa	323 ksi	
	@Strain 4.10 %, Temperature -40.0 °C	@Strain 4.10 %, Temperature -40.0 °F	ISO 11403-1 -2
	2.29 GPa	332 ksi	
	@Strain 2.20 %, Temperature 23.0 °C	@Strain 2.20 %, Temperature 73.4 °F	ISO 11403-1 -2
	2.56 GPa	372 ksi	
	@Strain 2.20 %, Temperature 0.000 °C	@Strain 2.20 %, Temperature 32.0 °F	ISO 11403-1 -2
	3.08 GPa	447 ksi	
	@Strain 0.500 %, Temperature 23.0 °C	@Strain 0.500 %, Temperature 73.4 °F	ISO 11403-1 -2
	3.39 GPa	492 ksi	
	@Strain 2.00 %, Temperature -40.0 °C	@Strain 2.00 %, Temperature -40.0 °F	ISO 11403-1 -2
	3.56 GPa	516 ksi	
	@Strain 0.500 %, Temperature 0.000 °C	@Strain 0.500 %, Temperature 32.0 °F	ISO 11403-1 -2
	4.20 GPa	609 ksi	
	@Strain 0.500 %, Temperature -40.0 °C	@Strain 0.500 %, Temperature -40.0 °F	ISO 11403-1 -2
Charpy Impact Unnotched	22.0 J/cm <sup>2</sup>	105 ft-lb/in <sup>2</sup>	ISO 179/1eU
	20.0 J/cm <sup>2</sup>	95.2 ft-lb/in <sup>2</sup>	
	@Temperature -30.0 °C	@Temperature -22.0 °F	ISO 179/1eU
Charpy Impact, Notched	0.700 J/cm <sup>2</sup>	3.33 ft-lb/in <sup>2</sup>	ISO 179/1eA
	0.650 J/cm <sup>2</sup>	3.09 ft-lb/in <sup>2</sup>	
	@Temperature -30.0 °C	@Temperature -22.0 °F	ISO 179/1eA

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	110 µm/m-°C	61.1 µin/in-°F	ISO 11359-1/-2
Melting Point	178 °C	352 °F	10°C/min; ISO 11357-1/-3
Deflection Temperature at 0.46 MPa (66 psi)	163 °C	325 °F	ISO 75-1/-2

<b>Thermal Properties</b> <small>Deflection Temperature at 1.8 MPa (204 psi)</small>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Vicat Softening Point	160 °C	320 °F	50°C/h 50N; ISO 306

<b>Descriptive Properties</b>	<b>Value</b>	<b>Comments</b>
Additives	Release agent	
Delivery Form	Pellets	
Part Marking Code	>POM<	ISO 11469
Processing	Injection Moulding	
Regional Availability	Asia Pacific	
	Europe	
	Global	
	Near East/Africa	
	North America	
	South and Central America	
Resin Identification	POM	ISO 1043

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