

## DuPont Performance Polymers Delrin® 311DP NC010 Acetal (POM) (Unverified Data\*\*)

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

### Material Notes:

Nucleated Medium-high Viscosity Acetal Homopolymer 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 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-POM-nbspUnverified-Data.php](http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Delrin-311DP-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	6.0 g/10 min @Load 2.16 kg, Temperature 190 °C	6.0 g/10 min @Load 4.76 lb, Temperature 374 °F	cm <sup>3</sup> /10min; ISO 1133
	7.0 g/10 min @Load 2.16 kg, Temperature 190 °C	7.0 g/10 min @Load 4.76 lb, Temperature 374 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Tensile Stress	4.47 MPa @Strain 0.150 %, Temperature 40.0 °C	648 psi @Strain 0.150 %, Temperature 104 °F	ISO 11403-1 -2
	6.31 MPa @Strain 0.460 %, Temperature 90.0 °C	915 psi @Strain 0.460 %, Temperature 194 °F	ISO 11403-1 -2
	9.92 MPa @Strain 0.290 %, Temperature 23.0 °C	1440 psi @Strain 0.290 %, Temperature 73.4 °F	ISO 11403-1 -2
	21.3 MPa	3090 psi	

Mechanical Properties	Metric	English	Comments
	@Strain 0.611 %, Temperature 0.000 °C	@Strain 0.611 %, Temperature 32.0 °F	ISO 11403-1 -2
	24.56 MPa	3562 psi	
	@Strain 2.58 %, Temperature 90.0 °C	@Strain 2.58 %, Temperature 194 °F	ISO 11403-1 -2
	27.19 MPa	3944 psi	
	@Strain 0.730 %, Temperature -20.0 °C	@Strain 0.730 %, Temperature -4.00 °F	ISO 11403-1 -2
	27.45 MPa	3981 psi	
	@Strain 0.690 %, Temperature -40.0 °C	@Strain 0.690 %, Temperature -40.0 °F	ISO 11403-1 -2
	32.21 MPa	4672 psi	
	@Strain 4.88 %, Temperature 90.0 °C	@Strain 4.88 %, Temperature 194 °F	ISO 11403-1 -2
	37.04 MPa	5372 psi	
	@Strain 1.71 %, Temperature 40.0 °C	@Strain 1.71 %, Temperature 104 °F	ISO 11403-1 -2
	50.17 MPa	7277 psi	
	@Strain 2.29 %, Temperature 23.0 °C	@Strain 2.29 %, Temperature 73.4 °F	ISO 11403-1 -2
	54.39 MPa	7889 psi	
	@Strain 3.93 %, Temperature 40.0 °C	@Strain 3.93 %, Temperature 104 °F	ISO 11403-1 -2
	56.48 MPa	8192 psi	
	@Strain 2.29 %, Temperature 0.000 °C	@Strain 2.29 %, Temperature 32.0 °F	ISO 11403-1 -2
	60.28 MPa	8743 psi	
	@Strain 6.41 %, Temperature 40.0 °C	@Strain 6.41 %, Temperature 104 °F	ISO 11403-1 -2
	64.31 MPa	9327 psi	
	@Strain 4.58 %, Temperature 23.0 °C	@Strain 4.58 %, Temperature 73.4 °F	ISO 11403-1 -2
	68.72 MPa	9967 psi	
	@Strain 7.21 %, Temperature 23.0 °C	@Strain 7.21 %, Temperature 73.4 °F	ISO 11403-1 -2
	72.85 MPa	10570 psi	
	@Strain 4.53 %, Temperature 0.000 °C	@Strain 4.53 %, Temperature 32.0 °F	ISO 11403-1 -2

Mechanical Properties	Metric <b>MPa</b>	English <b>psi</b>	Comments
	@Strain 3.25 %, Temperature -20.0 °C	@Strain 3.25 %, Temperature -4.00 °F	ISO 11403-1 -2
	<b>77.78 MPa</b>	<b>11280 psi</b>	
	@Strain 7.12 %, Temperature 0.000 °C	@Strain 7.12 %, Temperature 32.0 °F	ISO 11403-1 -2
	<b>80.68 MPa</b>	<b>11700 psi</b>	
	@Strain 3.12 %, Temperature -40.0 °C	@Strain 3.12 %, Temperature -40.0 °F	ISO 11403-1 -2
	<b>85.65 MPa</b>	<b>12420 psi</b>	
	@Strain 5.67 %, Temperature -20.0 °C	@Strain 5.67 %, Temperature -4.00 °F	ISO 11403-1 -2
	<b>88.5 MPa</b>	<b>12800 psi</b>	
	@Strain 8.47 %, Temperature -20.0 °C	@Strain 8.47 %, Temperature -4.00 °F	ISO 11403-1 -2
	<b>93.8 MPa</b>	<b>13600 psi</b>	
	@Strain 5.11 %, Temperature -40.0 °C	@Strain 5.11 %, Temperature -40.0 °F	ISO 11403-1 -2
	<b>97.6 MPa</b>	<b>14200 psi</b>	
	@Strain 7.38 %, Temperature -40.0 °C	@Strain 7.38 %, Temperature -40.0 °F	ISO 11403-1 -2
<b>Tensile Strength, Yield</b>	<b>74.0 MPa</b>	<b>10700 psi</b>	ISO 527-1/-2
<b>Elongation at Break</b>	<b>35 %</b>	<b>35 %</b>	Nominal; ISO 527-1/-2
<b>Elongation at Yield</b>	<b>15 %</b>	<b>15 %</b>	ISO 527-1/-2
<b>Tensile Modulus</b>	<b>3.30 GPa</b>	<b>479 ksi</b>	ISO 527-1/-2
<b>Flexural Strength</b>	<b>86.0 MPa</b>	<b>12500 psi</b>	ISO 178
	@Strain 3.50 %	@Strain 3.50 %	
<b>Flexural Modulus</b>	<b>3.10 GPa</b>	<b>450 ksi</b>	ISO 178
<b>Secant Modulus</b>	<b>0.570 GPa</b>	<b>82.7 ksi</b>	ISO 11403-1 -2
	@Strain 5.00 %, Temperature 100 °C	@Strain 5.00 %, Temperature 212 °F	
	<b>0.591 GPa</b>	<b>85.8 ksi</b>	
	@Strain 7.00 %, Temperature 80.0 °C	@Strain 7.00 %, Temperature 176 °F	ISO 11403-1 -2
	<b>0.736 GPa</b>	<b>107 ksi</b>	
			ISO 11403-1 -2

Mechanical Properties	@Strain 3.30 %, Metric Temperature 100 °C	@Strain 3.30 %, English Temperature 212 °F	Comments
	0.754 GPa	109 ksi	
	@Strain 8.18 %, Temperature 40.0 °C	@Strain 8.18 %, Temperature 104 °F	ISO 11403-1 -2
	0.9075 GPa	131.6 ksi	
	@Strain 4.00 %, Temperature 80.0 °C	@Strain 4.00 %, Temperature 176 °F	ISO 11403-1 -2
	0.99375 GPa	144.13 ksi	
	@Strain 1.60 %, Temperature 100 °C	@Strain 1.60 %, Temperature 212 °F	ISO 11403-1 -2
	1.15 GPa	167 ksi	
	@Strain 0.400 %, Temperature 100 °C	@Strain 0.400 %, Temperature 212 °F	ISO 11403-1 -2
	1.2163 GPa	176.41 ksi	
	@Strain 5.46 %, Temperature 23.0 °C	@Strain 5.46 %, Temperature 73.4 °F	ISO 11403-1 -2
	1.22 GPa	176 ksi	
	@Strain 4.70 %, Temperature 40.0 °C	@Strain 4.70 %, Temperature 104 °F	ISO 11403-1 -2
	1.255 GPa	182.0 ksi	
	@Strain 2.00 %, Temperature 80.0 °C	@Strain 2.00 %, Temperature 176 °F	ISO 11403-1 -2
	1.33 GPa	192 ksi	
	@Strain 6.56 %, Temperature -20.0 °C	@Strain 6.56 %, Temperature -4.00 °F	ISO 11403-1 -2
	1.40 GPa	203 ksi	
	@Strain 5.38 %, Temperature 0.000 °C	@Strain 5.38 %, Temperature 32.0 °F	ISO 11403-1 -2
	1.63 GPa	237 ksi	
	@Strain 5.86 %, Temperature -40.0 °C	@Strain 5.86 %, Temperature -40.0 °F	ISO 11403-1 -2
	1.64 GPa	238 ksi	
	@Strain 0.500 %, Temperature 80.0 °C	@Strain 0.500 %, Temperature 176 °F	ISO 11403-1 -2
	2.17 GPa	314 ksi	
	@Strain 1.71 %, Temperature 40.0 °C	@Strain 1.71 %, Temperature 104 °F	ISO 11403-1 -2

Mechanical Properties	2.19 GPa Metric	318 ksi English	Comments ISO 11403-1 -2
	@Strain 2.29 %, Temperature 23.0 °C	@Strain 2.29 %, Temperature 73.4 °F	
	2.31 GPa	336 ksi	ISO 11403-1 -2
	@Strain 3.25 %, Temperature -20.0 °C	@Strain 3.25 %, Temperature -4.00 °F	
	2.47 GPa	358 ksi	ISO 11403-1 -2
	@Strain 2.29 %, Temperature 0.000 °C	@Strain 2.29 %, Temperature 32.0 °F	
	2.5859 GPa	375.06 ksi	ISO 11403-1 -2
	@Strain 3.12 %, Temperature -40.0 °C	@Strain 3.12 %, Temperature -40.0 °F	
	2.98 GPa	432 ksi	ISO 11403-1 -2
	@Strain 0.150 %, Temperature 40.0 °C	@Strain 0.150 %, Temperature 104 °F	
	3.42 GPa	496 ksi	ISO 11403-1 -2
	@Strain 0.290 %, Temperature 23.0 °C	@Strain 0.290 %, Temperature 73.4 °F	
	3.49 GPa	506 ksi	ISO 11403-1 -2
	@Strain 0.611 %, Temperature 0.000 °C	@Strain 0.611 %, Temperature 32.0 °F	
	3.72 GPa	540 ksi	ISO 11403-1 -2
	@Strain 0.730 %, Temperature -20.0 °C	@Strain 0.730 %, Temperature -4.00 °F	
	3.98 GPa	577 ksi	ISO 11403-1 -2
	@Strain 0.690 %, Temperature -40.0 °C	@Strain 0.690 %, Temperature -40.0 °F	
Izod Impact, Notched (ISO)	10.0 kJ/m <sup>2</sup>	4.76 ft-lb/in <sup>2</sup>	ISO 180/1A
	8.00 kJ/m <sup>2</sup>	3.81 ft-lb/in <sup>2</sup>	ISO 180/1A
	@Temperature -40.0 °C	@Temperature -40.0 °F	
Charpy Impact Unnotched	30.0 J/cm <sup>2</sup>	143 ft-lb/in <sup>2</sup>	ISO 179/1eU
	25.0 J/cm <sup>2</sup>	119 ft-lb/in <sup>2</sup>	ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Charpy Impact, Notched	0.900 J/cm <sup>2</sup>	4.28 ft-lb/in <sup>2</sup>	ISO 179/1eA

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