

DuPont™ Delrin®

acetal resin

Delrin® 511P NC010

Delrin® 511P is a medium viscosity acetal homopolymer with improved thermal stability and modifications for more precise molding(reduced warpage, less shrinkage, fewer voids).

Property	Test Method	Units	Value
Identification			
Resin Identification	ISO 1043		POM
Part Marking Code	ISO 11469		>POM<
Mechanical			
Yield Stress	ISO 527	MPa (kpsi)	73 (10.6)
Yield Strain	ISO 527	%	12
Strain at Break	ISO 527	%	35
Nominal Strain at Break	ISO 527	%	25
Tensile Modulus	ISO 527	MPa (kpsi)	3400 (490)
Tensile Creep Modulus	ISO 899	MPa (kpsi)	
1h			3000 (435)
1000h			1700 (247)
Flexural Modulus	ISO 178	MPa (kpsi)	3100 (450)
Flexural Stress	ISO 178	MPa (kpsi)	
@ 3.5% Strain			90 (13.1)
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m ²	
-30°C (-22°F)			7
23°C (73°F)			8
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m ²	
-30°C (-22°F)			220
23°C (73°F)			260

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.

Test temperatures are 23°C unless otherwise stated.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Delrin® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

060123/060123

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.

Delrin® 511P NC010

Property	Test Method	Units	Value
Thermal			
Deflection Temperature	ISO 75f	°C (°F)	
0.45MPa			165 (329)
1.80MPa			107 (225)
Melting Temperature	ISO 11357-1/-3	°C (°F)	
10°C/min			178 (352)
CLTE, Normal	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			0.96 (0.53)
23 - 55°C (73 - 130°F)			1.17 (0.65)
55 - 100°C (130 - 212°F)			1.47 (0.82)
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			0.96 (0.53)
23 - 55°C (73 - 130°F)			1.2 (0.67)
55 - 100°C (130 - 212°F)			1.30 (0.72)
Vicat Softening Temperature	ISO 306	°C (°F)	
50N			160 (320)
Rheological			
Melt Mass-Flow Rate	ISO 1133	g/10 min	
190°C, 2.16kg			15
Electrical			
Surface Resistivity	IEC 60093	ohm	>1E15
Relative Permittivity	IEC 60250		
1E2 Hz			3.5
1E6 Hz			3.8
Volume Resistivity	IEC 60093	ohm m	1E12
Dissipation Factor	IEC 60250	E-4	
1E6 Hz			60
Electric Strength	IEC 60243-1	kV/mm	27
CTI	IEC 60112	V	600

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.

Test temperatures are 23°C unless otherwise stated.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Delrin® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

060123/060123

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.

Delrin® 511P NC010

Property	Test Method	Units	Value
Flammability			
Flammability Classification	IEC 60695-11-10		
0.75mm			HB
1.5mm			HB
3.0mm			HB
Oxygen Index	ISO 4589-1/-2	%	22
Temperature Index			
RTI, Electrical	UL 746B	°C	
0.75mm			50
1.5mm			110
3.0mm			110
RTI, Impact	UL 746B	°C	
0.75mm			50
1.5mm			85
3.0mm			90
RTI, Strength	UL 746B	°C	
0.75mm			50
1.5mm			90
3.0mm			95
Other			
Density	ISO 1183	kg/m ³ (g/cm ³)	1420 (1.42)
Hardness, Rockwell	ISO 2039/2		
Scale M			92
Scale R			120
Water Absorption	ISO 62, Similar to	%	
Equilibrium 50%RH			0.2
Saturation, immersed			0.9
Molding Shrinkage	ISO 294-4	%	
Normal, 2.0mm			1.7
Parallel, 2.0mm			1.8

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.

Test temperatures are 23°C unless otherwise stated.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Delrin® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

060123/060123

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.

Delrin® 511P NC010

Property	Test Method	Units	Value
Processing			
Melt Temperature Range		°C (°F)	210-220 (410-430)
Melt Temperature Optimum		°C (°F)	215 (420)
Mold Temperature Range		°C (°F)	80-100 (175-210)
Mold Temperature Optimum		°C (°F)	90 (195)
Drying Time, Dehumidified Dryer		h	2-4
Drying Temperature		°C (°F)	80 (175)
Processing Moisture Content		%	<0.2
Hold Pressure Range		MPa (kpsi)	80-100 (12-15)

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.

Test temperatures are 23°C unless otherwise stated.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Delrin® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

060123/060123

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.