

Delrin® 500P NC010

ACETAL RESIN

DuPont Performance Polymers

PROSPECTOR®

www.ulprospector.com

Technical Data

Product Description

Medium Viscosity Acetal Homopolymer with Improved Processing

General

Material Status	• Commercial: Active
Literature ¹	• Processing - Injection Molding (English) • Typical Processing for DuPont Engineering Polymers (English) • White Paper - Property Advantages of Delrin® Acetal Homopolymer - a guide for design engineers (English)
UL Yellow Card ²	• E41938-257616
Search for UL Yellow Card	• DuPont Performance Polymers • Delrin®
Availability	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Additive	• Lubricant • Mold Release
Features	• Good Processability • Homopolymer • Medium Viscosity
RoHS Compliance	• Contact Manufacturer
Forms	• Pellets
Processing Method	• Injection Molding
Multi-Point Data	• Coefficient of Thermal Expansion vs. Temperature (ISO 11403-1) • Creep Modulus vs. Time (ISO 11403-1) • Isochronous Stress vs. Strain (ISO 11403-1) • Isothermal Stress vs. Strain (ISO 11403-1) • Secant Modulus vs. Strain (ISO 11403-1) • Shear Modulus vs. Temperature (ISO 11403-1) • Shear Modulus vs. Temperature, Dynamic (ISO 11403-1) • Shear Stress vs. Shear Rate (ISO 11403-1) • Specific Volume vs Temperature (ISO 11403-2) • Tensile Modulus vs. Temperature (ISO 11403-1) • Viscosity vs. Shear Rate (ISO 11403-2)
Part Marking Code (ISO 11469)	• >POM<
Resin ID (ISO 1043)	• POM

Physical	Nominal Value Unit	Test Method
Density	1.42 g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	15 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	13 cm ³ /10min	ISO 1133
Molding Shrinkage		ISO 294-4
Across Flow	1.9 %	
Flow	2.0 %	
Water Absorption		ISO 62
Saturation, 23°C, 2.00 mm	1.3 %	
Equilibrium, 23°C, 2.00 mm, 50% RH	0.20 %	

Mechanical	Nominal Value Unit	Test Method
Tensile Modulus	3100 MPa	ISO 527-2
Tensile Stress (Yield)	71.0 MPa	ISO 527-2
Tensile Strain (Yield)	17 %	ISO 527-2
Nominal Tensile Strain at Break	30 %	ISO 527-2
Tensile Creep Modulus		ISO 899-1
1 hr	2800 MPa	
1000 hr	1600 MPa	
Flexural Modulus	3000 MPa	ISO 178
Flexural Stress (3.5% Strain)	80.0 MPa	ISO 178
Poisson's Ratio	0.37	



Impact	Nominal Value Unit	Test Method
Charpy Notched Impact Strength		ISO 179/1eA
-40°C	8.0 kJ/m ²	
-30°C	8.0 kJ/m ²	
23°C	9.0 kJ/m ²	
Charpy Unnotched Impact Strength		ISO 179/1eU
-30°C	280 kJ/m ²	
23°C	320 kJ/m ²	
Notched Izod Impact Strength		ISO 180/1A
-30°C	8.0 kJ/m ²	
23°C	9.0 kJ/m ²	
Unnotched Izod Impact Strength		ISO 180/1U
-30°C	250 kJ/m ²	
23°C	280 kJ/m ²	
Multi-Axial Instrumented Impact Energy		ISO 6603-2
23°C	3.00 J	
Multi-Axial Instrumented Impact Peak Force		ISO 6603-2
23°C	2000 N	
Hardness	Nominal Value Unit	Test Method
Rockwell Hardness		ISO 2039-2
M-Scale	92	
R-Scale	120	
Ball Indentation Hardness		ISO 2039-1
H 358/30	192 MPa	
H 961/30	170 MPa	
Thermal	Nominal Value Unit	Test Method
Heat Deflection Temperature		
0.45 MPa, Unannealed	160 °C	ISO 75-2/B
1.8 MPa, Unannealed	95.0 °C	ISO 75-2/A
1.8 MPa, Annealed	110 °C	ISO 75-2/A
Vicat Softening Temperature	155 °C	ISO 306/B50
Ball Pressure Test (165°C)	Pass	IEC 60695-10-2
Melting Temperature ⁴	178 °C	ISO 11357-3
CLTE		ISO 11359-2
Flow	1.0E-4 cm/cm/°C	
Flow : -40 to 23°C	9.0E-5 cm/cm/°C	
Transverse	1.0E-4 cm/cm/°C	
Transverse : -40 to 23°C	9.0E-5 cm/cm/°C	
Annealing Temperature	160 °C	
Annealing Time - Optional	30.0 min/mm	
Effective Thermal Diffusivity	9.00E-8 m ² /s	
Electrical	Nominal Value Unit	Test Method
Surface Resistivity	4.0E+14 ohms	IEC 62631-3-2
Volume Resistivity	2.0E+12 ohms·m	IEC 62631-3-1
Electric Strength	44 kV/mm	IEC 60243-1
Relative Permittivity		IEC 62631-2-1
100 Hz	3.80	
1 MHz	3.80	
Dissipation Factor		IEC 62631-2-1
1 MHz	5.5E-3	
100 Hz	9.0E-3	
Comparative Tracking Index	600 V	IEC 60112



Flammability	Nominal Value Unit	Test Method
Burning Rate ⁵ (1.00 mm)	20 mm/min	ISO 3795
Flame Rating		UL 94
0.8 mm	HB	IEC 60695-11-10, -20
1.5 mm	HB	
Oxygen Index	22 %	ISO 4589-2
FMVSS Flammability	B	FMVSS 302
Fogging		ISO 6452
F-value (refraction)	90 %	
G-value (condensate)	3.5E-4 g	

Fill Analysis	Nominal Value Unit
Melt Density	1.19 g/cm ³
Thermal Conductivity of Melt	0.24 W/m/K

Additional Information	Nominal Value Unit	Test Method
Emission	< 8.00 mg/kg	VDA 275

Injection	Nominal Value Unit
Drying Temperature	80 °C
Drying Time - Desiccant Dryer	2.0 to 4.0 hr
Suggested Max Moisture	0.20 %
Processing (Melt) Temp	210 to 220 °C
Melt Temperature, Optimum	215 °C
Mold Temperature	80 to 100 °C
Mold Temperature, Optimum	90 °C
Holding Pressure	80.0 to 100 MPa
Drying Recommended	yes
Hold Pressure Time	8.00 s/mm

Notes

¹ These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

² A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

³ Typical properties: these are not to be construed as specifications.

⁴ 10°C/min

⁵ FMVSS 302



Where to Buy

Supplier

DuPont Performance Polymers

Wilmington, DE USA
Telephone: 302-999-4592
Web: <http://plastics.dupont.com/>

Distributor

Biesterfeld

Biesterfeld is a Pan European distribution company. Contact Biesterfeld for availability of individual products by country.

Telephone: +49-40-32008-0

Web: <http://www.biesterfeld-plastic.com/>

Availability: Algeria, Austria, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Croatia, Cyprus, Czech Republic, Egypt, France, Germany, Greece, Hungary, Italy, Libyan Arab Jamahiriya, Luxembourg, Mauritania, Morocco, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Tunisia, Turkey

CCC Plastics

Telephone: 800-465-6917

Web: <https://www.ccc-group.com/>

Availability: Canada

Distrupol Ltd

Distrupol Ltd is a Pan European distribution company. Contact Distrupol Ltd for availability of individual products by country.

Telephone: 08452003040

Web: <http://www.distrupol.com/>

Availability: Denmark, Finland, Ireland, Norway, Sweden, United Kingdom

PolyOne Distribution

PolyOne Distribution is a global distribution company. Contact PolyOne Distribution for availability of individual products by country.

Telephone: 800-894-4266

Web: <http://polyonedistribution.com/>

Availability: Global

