

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 • Medium Viscosity
RoHS Compliance	• Contact Manufacturer
Forms	• Pellets
Processing Method	• Injection Molding
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1) • Secant Modulus vs. Strain (ISO 11403-1) • Shear Modulus vs. Temperature (ISO 11403-1) • Shear Stress vs. Shear Rate (ISO 11403-1) • Specific Volume vs. Temperature (ISO 11403-2) • Viscosity vs. Shear Rate (ISO 11403-2)
Part Marking Code (ISO 11469)	• >POM<
Resin ID (ISO 1043)	• POM

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.42 g/cm ³	1.42 g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR)	15 g/10 min	15 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	0.793 in ³ /10min	13.0 cm ³ /10min	ISO 1133
Molding Shrinkage			ISO 294-4
Across Flow	1.9 %	1.9 %	
Flow	2.0 %	2.0 %	
Water Absorption			ISO 62
Saturation, 73°F (23°C), 0.0787 in (2.00 mm)	1.4 %	1.4 %	
Equilibrium, 73°F (23°C), 0.0787 in (2.00 mm), 50% RH	0.40 %	0.40 %	

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	450000 psi	3100 MPa	ISO 527-2
Tensile Stress (Yield)	10300 psi	71.0 MPa	ISO 527-2
Tensile Strain (Yield)	17 %	17 %	ISO 527-2
Nominal Tensile Strain at Break	30 %	30 %	ISO 527-2
Tensile Creep Modulus			ISO 899-1
1 hr	406000 psi	2800 MPa	
1000 hr	232000 psi	1600 MPa	
Flexural Modulus	435000 psi	3000 MPa	ISO 178
Flexural Stress (3.5% Strain)	11600 psi	80.0 MPa	ISO 178
Poisson's Ratio	0.37	0.37	ISO 527-2

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F (-30°C)	3.8 ft·lb/in ²	8.0 kJ/m ²	
73°F (23°C)	4.3 ft·lb/in ²	9.0 kJ/m ²	



Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F (-30°C)	130 ft·lb/in ²	280 kJ/m ²	
73°F (23°C)	150 ft·lb/in ²	320 kJ/m ²	
Notched Izod Impact Strength			ISO 180/1A
-22°F (-30°C)	3.8 ft·lb/in ²	8.0 kJ/m ²	
73°F (23°C)	4.3 ft·lb/in ²	9.0 kJ/m ²	
Unnotched Izod Impact Strength			ISO 180/1U
-22°F (-30°C)	120 ft·lb/in ²	250 kJ/m ²	
73°F (23°C)	130 ft·lb/in ²	280 kJ/m ²	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
73°F (23°C)	2.21 ft·lb	3.00 J	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
73°F (23°C)	450 lbf	2000 N	
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness			ISO 2039-2
M-Scale	92	92	
R-Scale	120	120	
Ball Indentation Hardness (H 358/30)	27800 psi	192 MPa	ISO 2039-1
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Heat Deflection Temperature			
66 psi (0.45 MPa), Unannealed	320 °F	160 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	203 °F	95.0 °C	ISO 75-2/A
Vicat Softening Temperature	311 °F	155 °C	ISO 306/B50
Ball Pressure Test (329°F (165°C))	Pass	Pass	IEC 60309-1
Melting Temperature ⁴	352 °F	178 °C	ISO 11357-3
CLTE			ISO 11359-2
Flow	6.1E-5 in/in/°F	1.1E-4 cm/cm/°C	
Transverse	6.1E-5 in/in/°F	1.1E-4 cm/cm/°C	
Annealing Temperature	320 °F	160 °C	
Annealing Time - Optional	30.0 min/mm	30.0 min/mm	
Effective Thermal Diffusivity	9.00E-8 m ² /s	9.00E-8 m ² /s	
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface Resistivity	4.0E+14 ohms	4.0E+14 ohms	IEC 60093
Volume Resistivity	2.0E+14 ohms·cm	2.0E+14 ohms·cm	IEC 60093
Electric Strength	1100 V/mil	44 kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
100 Hz	3.80	3.80	
1 MHz	3.80	3.80	
Dissipation Factor			IEC 60250
100 Hz	9.0E-3	9.0E-3	
1 MHz	5.5E-3	5.5E-3	
Comparative Tracking Index	600 V	600 V	IEC 60112
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Burning Rate ⁵ (0.0394 in (1.00 mm))	0.79 in/min	20 mm/min	ISO 3795
Flame Rating			UL 94
0.0315 in (0.800 mm)	HB	HB	IEC 60695-11-10, -20
0.0591 in (1.50 mm)	HB	HB	
Oxygen Index	22 %	22 %	ISO 4589-2
Fogging			ISO 6452
F-value (refraction)	90 %	90 %	
G-value (condensate)	3.5E-4 g	3.5E-4 g	
Fill Analysis	Nominal Value (English)	Nominal Value (SI)	Test Method
Thermal Conductivity of Melt	1.7 Btu·in/hr/ft ² /°F	0.24 W/m/K	



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Additional Information	Nominal Value (English)	Nominal Value (SI)	Test Method
Emission	< 8.00 mg/kg	< 8.00 mg/kg	VDA 275
Emission of Organic Compounds	3.10 µgC/g	3.10 µgC/g	VDA 277

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	176 °F	80.0 °C
Drying Time	2.0 to 4.0 hr	2.0 to 4.0 hr
Suggested Max Moisture	0.20 %	0.20 %
Processing (Melt) Temp	410 to 428 °F	210 to 220 °C
Melt Temperature, Optimum	419 °F	215 °C
Mold Temperature	176 to 212 °F	80.0 to 100 °C
Mold Temperature, Optimum	194 °F	90 °C
Holding Pressure	11600 to 14500 psi	80.0 to 100 MPa
Drying Recommended	yes	yes
Hold Pressure Time	8.00 s/mm	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 Plastic GmbH

Biesterfeld Plastic GmbH is a Pan European distribution company. Contact Biesterfeld Plastic GmbH 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: <http://www.cccplastics.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

