Delrin® 500P NC010

ACETAL RESIN

DuPont Performance Polymers

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	Unit	Test Method
Density	1.42	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)	15	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	13.0	cm³/10min	ISO 1133
Molding Shrinkage			ISO 294-4
Across Flow	1.9	%	
Flow	2.0	%	
Water Absorption			ISO 62
Saturation, 23°C, 2.00 mm	1.4	%	
Equilibrium, 23°C, 2.00 mm, 50% RH	0.40	%	
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		ISO 527-2
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength			ISO 179/1eA
-30°C	8.0	kJ/m²	
23°C	9.0	kJ/m²	

Impact	Nominal Value Unit	Test Method
Charpy Unnotched Impact Strength		ISO 179/1eU
-30°C	280 kJ/m²	
23°C	320 kJ/m²	
Notched Izod Impact Strength		ISO 180/1A
-30°C	8.0 kJ/m²	
23°C	9.0 kJ/m²	
Unnotched Izod Impact Strength		ISO 180/1U
-30°C	250 kJ/m²	
23°C	280 kJ/m²	
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 (H 358/30)	192 MPa	ISO 2039-1
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
Vicat Softening Temperature	155 °C	ISO 306/B50
Ball Pressure Test (165°C)	Pass	IEC 60309-1
Melting Temperature [4]	178 °C	ISO 11357-3
CLTE		ISO 11359-2
Flow	1.1E-4 cm/cm/°C	
Transverse	1.1E-4 cm/cm/°C	
Annealing Temperature	160 °C	
Annealing Time - Optional	30.0 min/mm	
Effective Thermal Diffusivity	9.00E-8 m²/s	
Electrical	**Nominal Value Unit**	**Test Method**
Surface Resistivity	4.0E+14 ohms	IEC 60093
Volume Resistivity	2.0E+14 ohms·cm	IEC 60093
Electric Strength	44 kV/mm	IEC 60243-1
Relative Permittivity		IEC 60250
100 Hz	3.80	
1 MHz	3.80	
Dissipation Factor		IEC 60250
100 Hz	9.0E-3	
1 MHz	5.5E-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 IEC 60695-11-10, -20
0.800 mm	HB	
1.50 mm	HB	
Oxygen Index	22 %	ISO 4589-2
Fogging		ISO 6452
F-value (refraction)	90 %	
G-value (condensate)	3.5E-4 g	
Fill Analysis	**Nominal Value Unit**	
Thermal Conductivity of Melt	0.24 W/m/K	

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

Injection	Nominal Value	Unit
Drying Temperature	80.0	°C
Drying Time	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	80.0 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