



Delrin[®] 500P NC010

Medium Viscosity Acetal Homopolymer with Improved Processing

Physical Properties

MEASUREMENT	CONDITION	Value
Density	ISO 1183	1.42g/cm ³
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	ISO 1133	15g/10 min
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	ISO 1133	13cm ³ /10min
Molding Shrinkage Across Flow Flow	ISO 294-4	1.9% 2.0%
Water Absorption Saturation, 73°F, 0.0787 in Equilibrium, 73°F, 0.0787 in, 50% RH	ISO 62	1.3% 0.20%

Processing Method

- Injection Molding

Hardness Properties

MEASUREMENT	CONDITION	Value
Rockwell Hardness M-Scale R-Scale	ISO 2039-2	92 120
Ball Indentation Hardness H 358/30 H 961/30	ISO 2039-1	27800psi 24700psi

Mechanical Properties

MEASUREMENT	CONDITION	Value
Tensile Modulus	ISO 527-1	450000psi
Tensile Stress (Yield)	ISO 527-2	10300psi
Tensile Strain (Yield)	ISO 527-2	17%
Nominal Tensile Strain at Break	ISO 527-2	30%

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Mechanical Properties (continued)

MEASUREMENT	CONDITION	Value
Tensile Creep Modulus 1hr 1000hr	ISO 899-1	406000psi 232000psi
Flexural Modulus	ISO 178	435000psi
Flexural Stress (3.5% Strain)	ISO 178	11600psi
Poisson's Ratio	--	0.37

Impact Properties

MEASUREMENT	CONDITION	Value
Charpy Notched Impact Strength -40°F -22°F 73°F	ISO 179/1eA	3.8ft·lb/in ² 3.8ft·lb/in ² 4.3ft·lb/in ²
Charpy Unnotched Impact Strength -22°F 73°F	ISO 179/1eU	130ft·lb/in ² 140ft·lb/in ²
Notched Izod Impact Strength -22°F 73°F	ISO 180/1A	3.8ft·lb/in ² 4.3ft·lb/in ²
Unnotched Izod Impact Strength -22°F 73°F	ISO 180/1U	120ft·lb/in ² 130ft·lb/in ²
Multi-Axial Instrumented Impact Energy (73°F)	ISO 6603-2	2.21ft·lb
Multi-Axial Instrumented Impact Peak Force (73°F)	ISO 6603-2	450lbf

Thermal Properties

MEASUREMENT	CONDITION	Value
Deflection Temperature Under Load 66 psi, Unannealed 264 psi, Unannealed 264 psi, Annealed	ISO 75-2/B ISO 75-2/A ISO 75-2/A	320°F 199°F 230°F
Vicat Softening Temperature	ISO 306/B50	311°F
Ball Pressure Test (329°F)	IEC 60695-10-2	Pass

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Thermal Properties (continued)

MEASUREMENT	CONDITION	Value
Melting Temperature ²	ISO 11357-3	352°F
CLTE Flow Transverse	ISO 11359-2	5.6E-5in/in/°F 5.6E-5in/in/°F
Annealing Temperature	--	320°F
Annealing Time - Optional	--	30.0min/mm
Effective Thermal Diffusivity	--	1.40E-10in ² /s

Electrical Properties

MEASUREMENT	CONDITION	Value
Surface Resistivity	IEC 62631-3-2	4.0E+14 ohms
Volume Resistivity	IEC 62631-3-1	2.0E+12 ohms·m
Electric Strength	IEC 60243-1	1100 V/mil
Relative Permittivity 2.50 GHz ³ 100 Hz 1 MHz	IEC 61189-2-721 IEC 62631-2-1 IEC 62631-2-1	3.10 3.80 3.80
Dissipation Factor 2.50 GHz ³ 100 Hz 1 MHz	IEC 61189-2-721 IEC 62631-2-1 IEC 62631-2-1	0.043 9.0E-3 9.0E-3
Comparative Tracking Index	IEC 60112	600V

Flammability Properties

MEASUREMENT	CONDITION	Value
Burning Rate ⁴ (0.0394 in)	ISO 3795	0.79in/min
Flame Rating 0.031 in 0.06 in 0.03 in	UL 94 UL 94, IEC 60695-11-10, -20 IEC 60695-11-10, -20	HB HB HB
Oxygen Index	ISO 4589-2	22%
FMVSS Flammability	FMVSS 302	B

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Fill Analysis Properties

MEASUREMENT	CONDITION	Value
Melt Density	--	1.19g/cm ³
Thermal Conductivity of Melt	ISO 22007-2	1.7 Btu·in/hr/ft ² /°F
Emission	VDA 275	< 8 ppm
Fogging		
F-value (refraction)	ISO 6452	90%
G-value (condensate)		0.35mg

Injection Properties

MEASUREMENT	Value
Drying Temperature	176°F
Drying Time - Desiccant Dryer	2.0 to 4.0hr
Suggested Max Moisture	< 0.20%
Processing (Melt) Temp	410 to 428°F
Melt Temperature, Optimum	419°F
Mold Temperature	176 to 212°F
Mold Temperature, Optimum	194°F
Holding Pressure	11600 to 14500psi
Drying Recommended	yes
Hold Pressure Time	8.00s/mm
Maximum Screw Tangential Speed	709in/min

Notes:

²10°C/min

³printed circuits and boards

⁴FMVSS 302

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