

Delrin® 500AL NCo10

ACETAL RESIN

Product Description

Delrin® 500AL is a medium viscosity acetal homopolymer, with an advanced system of lubrication for applications requiring low wear and/or coefficient of friction against steel, itself or other plastics.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Additive	• Lubricant		
Features	• Good Creep Resistance • Good Wear Resistance • Homopolymer	• Low Friction • Lubricated • Medium Viscosity	• Ultrasonic Weldable
Uses	• Conveyors	• Engineering Parts	• Gears
RoHS Compliance	• Contact Manufacturer		
Appearance	• Natural Color		
Processing Method	• Injection Molding		
Part Marking Code (ISO 11469)	• >POM-S<		
Resin ID (ISO 1043)	• POM-S		
Product Category	• Low Wear and Friction Resins • Unreinforced Resins		

Physical	Nominal Value Unit	Test Method
Specific Gravity		
--	1.39	ASTM D792
--	1.39 g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR)		
190°C/1.05 kg	6.0 g/10 min	ASTM D1238
190°C/2.16 kg	14 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	0.732 in ³ /10min	ISO 1133
Molding Shrinkage		
Flow: 24 hr, 0.126 in	0.017 to 0.020 in/in	ASTM D955
Across Flow: 24 hr, 0.126 in	0.017 to 0.020 in/in	ASTM D955
Across Flow: 0.0787 in	1.7 %	ISO 294-4
Flow: 0.0787 in	1.8 %	ISO 294-4
Across Flow: 0.157 in	1.9 %	ISO 294-4
Flow: 0.157 in	1.9 %	ISO 294-4
Mechanical	Nominal Value Unit	Test Method
Tensile Modulus		
73°F ²	460000 psi	ASTM D638
73°F	435000 psi	ISO 527-2
Tensile Strength		
Yield, 73°F ²	9570 psi	ASTM D638
Yield, 73°F	9430 psi	ISO 527-2
73°F ²	9570 psi	ASTM D638
Tensile Elongation		
Yield, 73°F ²	10 %	ASTM D638
Yield, 73°F	11 %	ISO 527-2
Break, 73°F ²	30 %	ASTM D638
Break, 73°F	35 %	ISO 527-2/50
Nominal Tensile Strain at Break (73°F)	23 %	ISO 527-2

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Mechanical	Nominal Value Unit	Test Method
Tensile Creep Modulus		ISO 899-1
1 hr	348000 psi	
1000 hr	232000 psi	
Flexural Modulus		
73°F	431000 psi	ASTM D790
73°F	406000 psi	ISO 178
Flexural Strength (5.0% Strain, 73°F)	12800 psi	ASTM D790
Impact	Nominal Value Unit	Test Method
Charpy Notched Impact Strength		ISO 179/1eA
-22°F	2.9 ft-lb/in ²	
73°F	3.3 ft-lb/in ²	
Charpy Unnotched Impact Strength		ISO 179/1eU
-22°F	62 ft-lb/in ²	
73°F	76 ft-lb/in ²	
Notched Izod Impact		
73°F	1.1 ft-lb/in	ASTM D256
-40°F	2.4 ft-lb/in ²	ISO 180/1A
73°F	2.9 ft-lb/in ²	ISO 180/1A
Thermal	Nominal Value Unit	Test Method
Deflection Temperature Under Load		
66 psi, Unannealed	336 °F	ASTM D648
66 psi, Unannealed	327 °F	ISO 75-2/B
264 psi, Unannealed	226 °F	ASTM D648
264 psi, Unannealed	207 °F	ISO 75-2/A
Melting Temperature ³	352 °F	ISO 11357-3 ASTM D3418
CLTE		
Flow: 73 to 131°F	0.000066 in/in/°F	ASTM E831
Flow: -40 to 73°F	0.000056 in/in/°F	ISO 11359-2
Flow: 73 to 131°F	0.000067 in/in/°F	ISO 11359-2
Flow: 131 to 212°F	0.000083 in/in/°F	ISO 11359-2
Transverse: 73 to 131°F	0.000064 in/in/°F	ASTM E831
Transverse: -40 to 73°F	0.000056 in/in/°F	ISO 11359-2
Transverse: 73 to 131°F	0.000067 in/in/°F	ISO 11359-2
Transverse: 131 to 212°F	0.000094 in/in/°F	ISO 11359-2
Electrical	Nominal Value Unit	Test Method
Surface Resistivity	4.0E+15 ohms	ASTM D257
Volume Resistivity (73°F)	7.0E+14 ohm-cm	ASTM D257
Dielectric Strength ⁴ (73°F, 0.126 in)	450 V/mil	ASTM D149
Dielectric Constant (73°F, 1 MHz)	3.60	ASTM D150
Dissipation Factor (73°F, 1 MHz)	0.0060	ASTM D150
Flammability	Nominal Value Unit	Test Method
Flame Rating - UL		UL 94
0.0295 in	HB	
0.0591 in	HB	
0.118 in	HB	
Flammability Classification		IEC 60695-11-10, -20
0.0295 in	HB	
0.0591 in	HB	
0.118 in	HB	

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UL	Nominal Value Unit	Test Method
RTI Str		UL 746
0.0295 in	122 °F	
0.0591 in	194 °F	
0.118 in	203 °F	
RTI Imp		UL 746
0.0295 in	122 °F	
0.0591 in	185 °F	
0.118 in	194 °F	
RTI Elec		UL 746
0.0295 in	122 °F	
0.0591 in	230 °F	
0.118 in	230 °F	
Comparative Tracking Index (CTI) (0.118 in)	600 V	UL 746

Injection	Nominal Value Unit
Drying Temperature	176 °F
Drying Time	2.0 to 4.0 hr
Suggested Max Moisture	< 0.10 %
Processing (Melt) Temp	410 to 428 °F
Melt Temperature, Optimum	
Injection Molding	419 °F
Mold Temperature	176 to 212 °F
Mold Temperature, Optimum	
Injection Molding	194 °F
Drying Recommended	Not normally required unless moisture content of resin exceeds recommended level

Notes

¹ Typical properties: these are not to be construed as specifications.

² 0.20 in/min

³ 10°C/min

⁴ Method A (Short-Time)

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.

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