

# DuPont™ Delrin® 500T NC010

## ACETAL RESIN

### Product Information

Common features of Delrin® acetal resins include mechanical and physical properties such as high mechanical strength and rigidity, excellent fatigue and impact resistance, as well as resistance to moisture, gasoline, lubricants, solvents, and many other neutral chemicals. Delrin® acetal resins also have excellent dimensional stability and good electrical insulating characteristics. They are naturally resilient, self-lubricating, and available in a variety of colors and speciality grades.

Delrin® acetal resin typically is used in demanding applications in the automotive, domestic appliances, sports, industrial engineering, electronics, and consumer goods industries.

**Delrin® 500T is a toughened, medium viscosity acetal homopolymer resin for injection molding with impact resistance similar to Delrin® 100. It can be used in parts requiring noise reduction.**

General information	Value	Unit	Test Standard
Resin Identification	POM-I	-	ISO 1043
Part Marking Code	POM-I	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate	10	cm <sup>3</sup> /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Melt mass-flow rate	12	g/10min	ISO 1133
Molding shrinkage, parallel	1.5	%	ISO 294-4, 2577
Molding shrinkage, normal	1.6	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	2300	MPa	ISO 527-1/-2
Yield stress	56	MPa	ISO 527-1/-2
Yield strain	18	%	ISO 527-1/-2
Nominal strain at break	35	%	ISO 527-1/-2
Flexural Modulus	2100	MPa	ISO 178
Flexural Stress at 3.5%	60	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	2300	MPa	
1000h	1200	MPa	
Charpy impact strength			ISO 179/1eU
73°F	N	kJ/m <sup>2</sup>	
-22°F	330	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
73°F	14	kJ/m <sup>2</sup>	
-22°F	9	kJ/m <sup>2</sup>	
Izod notched impact strength			ISO 180/1A
73°F	14	kJ/m <sup>2</sup>	
-40°F	9	kJ/m <sup>2</sup>	
Ball indentation hardness, H 961/30	155	MPa	ISO 2039-1
Hardness, Rockwell, M-scale	79	-	ISO 2039-2
Hardness, Rockwell, R-scale	117	-	ISO 2039-2
Coefficient of sliding friction, 1h against itself	0.22	-	ASTM 1894
Specific wear rate, against itself	40	E-6 mm <sup>3</sup> /Nm	ASTM 1894
Thermal properties	Value	Unit	Test Standard
Melting temperature, 18°F/min	178	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
260 psi	78	°C	
65 psi	146	°C	
Vicat softening temperature			ISO 306
90°F/h, 11 lbf	140	°C	
90°F, 2 lbf	172	°C	
Coeff. of linear therm. expansion, parallel	130	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	120	E-6/K	ISO 11359-1/-2

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

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RTI, electrical			UL 746B
30mil	105	°C	
60mil	105	°C	
120mil	105	°C	
RTI, impact			UL 746B
30mil	85	°C	
60mil	85	°C	
120mil	85	°C	
RTI, strength			UL 746B
30mil	85	°C	
60mil	85	°C	
120mil	85	°C	
<b>Flammability</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Burning Behav. at 60mil nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.75	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
Glow Wire Flammability Index			IEC 60695-2-1/2
40mil	550	°C	
80mil	550	°C	
120mil	550	°C	
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	45	mm/min	ISO 3795 (FMVSS 302)
<b>Electrical properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Relative permittivity			IEC 60250
100Hz	3.6	-	
1MHz	3.6	-	
Dissipation factor, 1MHz	160	E-4	IEC 60250
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	1E15	Ohm	IEC 60093
Comparative tracking index	600	-	IEC 60112
<b>Other properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Humidity absorption, 80mil	0.21	%	Sim. to ISO 62
Water absorption, 80mil	0.82	%	Sim. to ISO 62
Density	1380	kg/m <sup>3</sup>	ISO 1183
Density of melt	1180	kg/m <sup>3</sup>	-
<b>VDA Properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Emissions	<8	mg/kg	VDA 275
Fogging, G-value (condensate)	0.2	mg	ISO 6452
1:			
<b>Injection</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Drying Recommended	yes	-	-
Drying Temperature	80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.05	%	-
Melt Temperature Optimum	205	°C	-
Min. melt temperature	200	°C	-
Max. melt temperature	210	°C	-
Mold Temperature Optimum	50	°C	-
Min. mold temperature	40	°C	-
Max. mold temperature	60	°C	-
Hold pressure range	60 - 80	MPa	-
Hold pressure time	7.5	s/mm	-
Annealing time, optional	30	min/mm	-

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Annealing temperature

160 °C

-

### Characteristics

Processing	• Injection Molding		
Delivery form	• Pellets		
Additives	• Lubricants	• Release agent	
Regional Availability	• North America	• Asia Pacific	• Near East/Africa
	• Europe	• South and Central America	• Global

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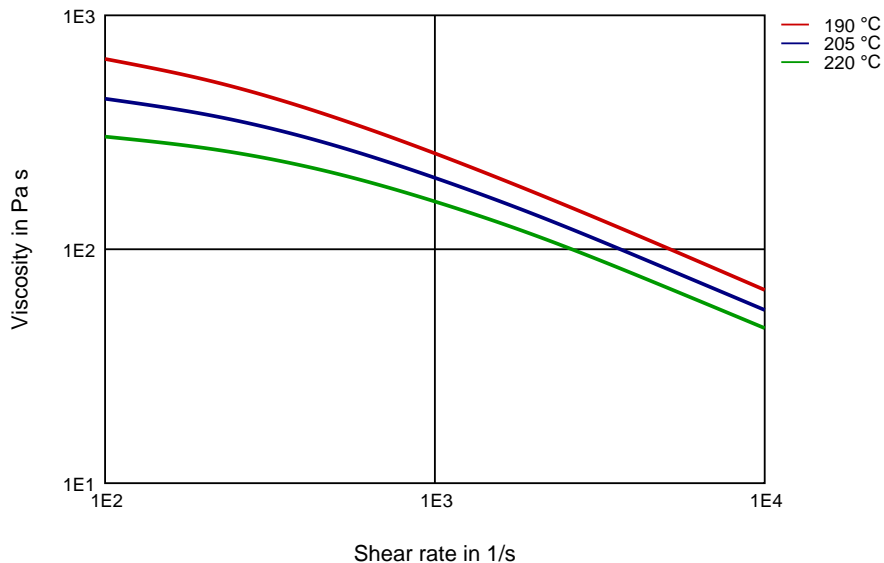


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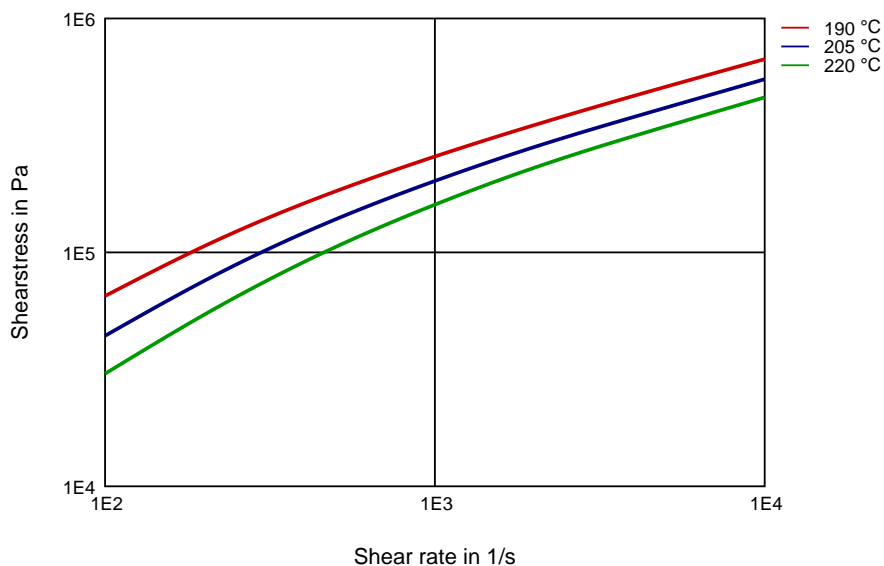
## ACETAL RESIN

### Diagrams

#### Viscosity-shear rate



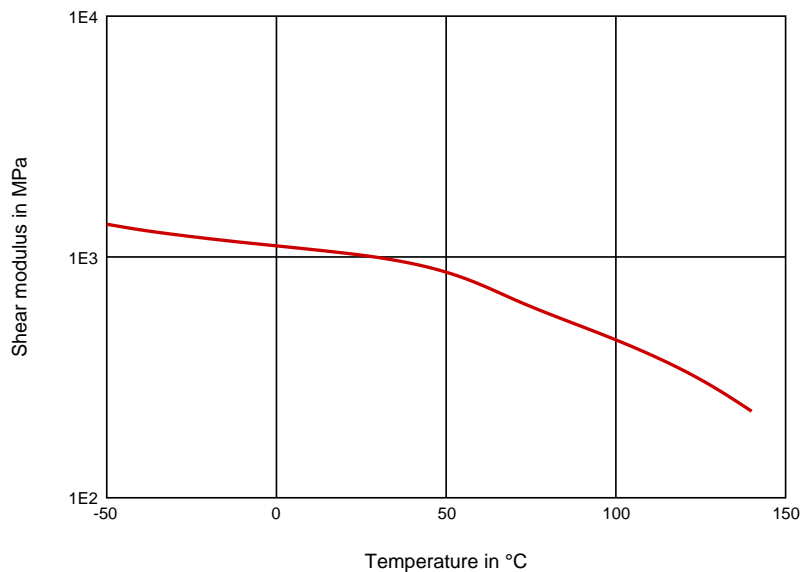
#### Shearstress-shear rate



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Dynamic Shear modulus-temperature



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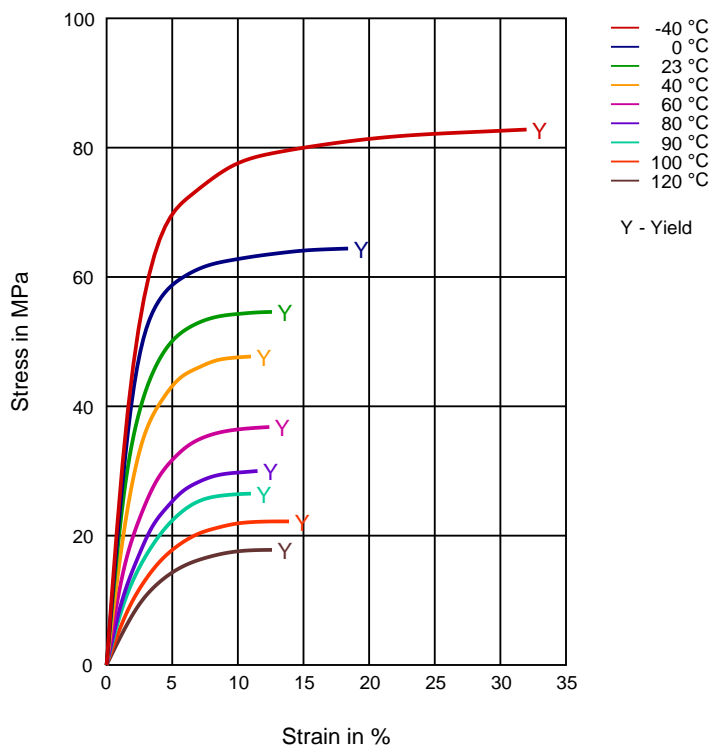
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Stress-strain



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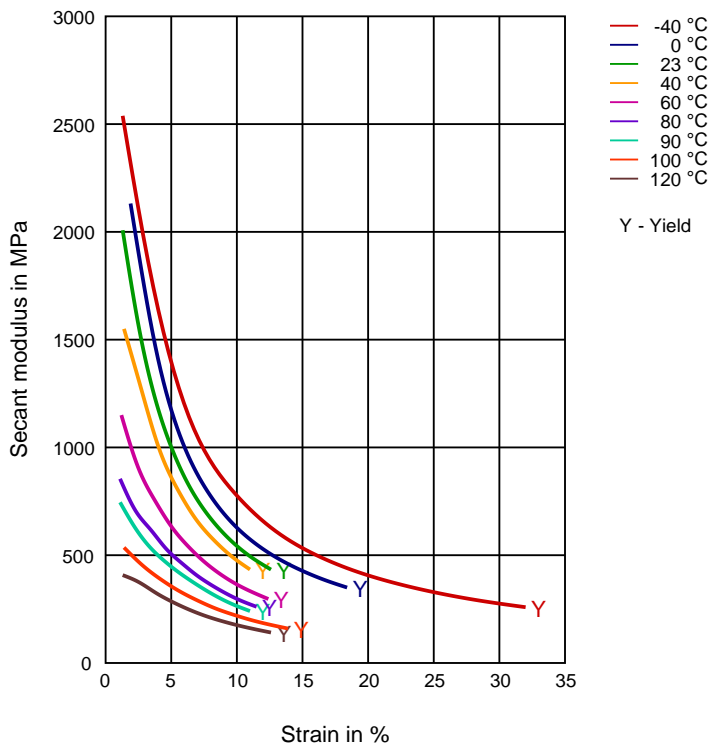
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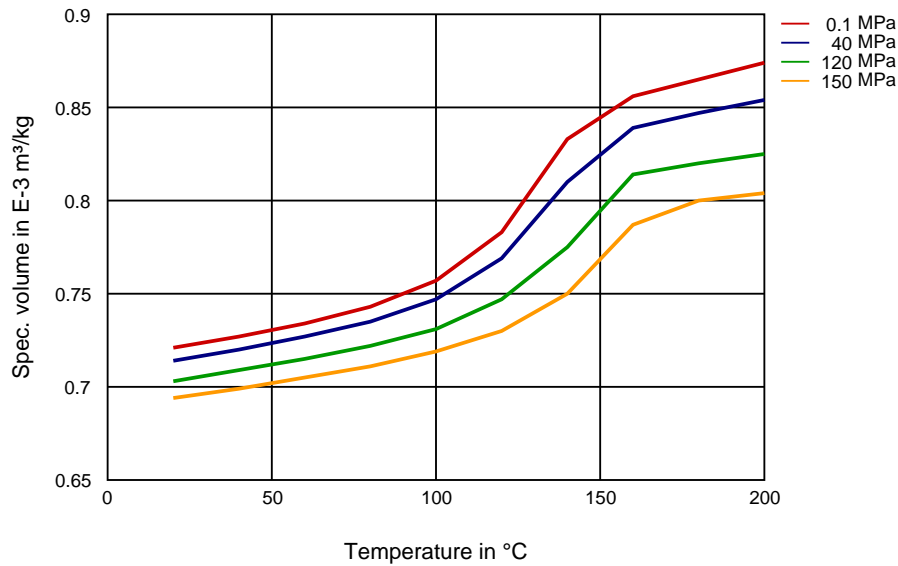
Secant modulus-strain



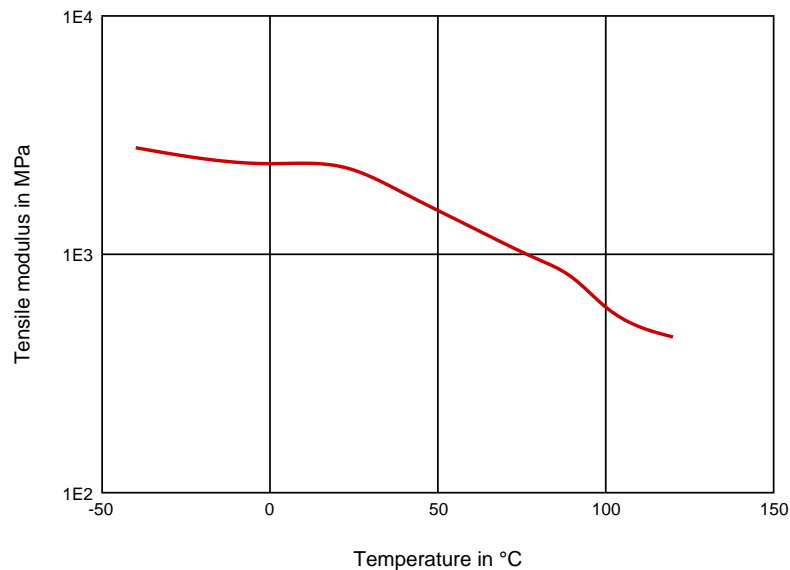
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### Specific volume-temperature (pvT)



### Tensile modulus-temperature



Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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