

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 ³ /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Melt mass-flow rate	12	g/10min	ISO 1133
Melt mass-flow rate, Temperature	190	°C	ISO 1133
Melt mass-flow rate, Load	2.16	kg	ISO 1133
Moulding shrinkage, parallel	1.5	%	ISO 294-4, 2577
Moulding 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
23°C	N	kJ/m ²	
-30°C	330	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
23°C	14	kJ/m ²	
-30°C	9	kJ/m ²	
Izod notched impact strength			ISO 180/1A
23°C	14	kJ/m ²	
-40°C	9	kJ/m ²	
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 ³ /Nm	ASTM 1894
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10° C/min	178	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	78	°C	
0.45 MPa	146	°C	
Vicat softening temperature			ISO 306
50°C/h, 50N	140	°C	
50°C/h, 10N	172	°C	
Coeff. of linear therm. expansion, parallel	130	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal	120	E-6/K	ISO 11359-1/-2
RTI, electrical			UL 746B
0.75mm	105	°C	
1.5mm	105	°C	
3mm	105	°C	
RTI, impact			UL 746B
0.75mm	85	°C	
1.5mm	85	°C	
3mm	85	°C	
RTI, strength			UL 746B
0.75mm	85	°C	
1.5mm	85	°C	
3mm	85	°C	
Flammability	Value	Unit	Test Standard
Burning Behav. at 1.5mm 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 60695-2-12
1mm	550	°C	
2mm	550	°C	
3mm	550	°C	
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	45	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 62631-2-1
100Hz	3.6	-	
1MHz	3.6	-	
Dissipation factor, 1MHz	160	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm*m	IEC 62631-3-1
Surface resistivity	1E15	Ohm	IEC 62631-3-2
Comparative tracking index	600	-	IEC 60112
Other properties	Value	Unit	Test Standard
Humidity absorption, 2mm	0.21	%	Sim. to ISO 62
Water absorption, 2mm	0.82	%	Sim. to ISO 62
Density	1380	kg/m ³	ISO 1183
Density of melt	1180	kg/m ³	-
Water Absorption, Immersion 24h	0.3	%	Sim. to ISO 62
VDA Properties	Value	Unit	Test Standard
Emissions	<8	mg/kg	VDA 275
Fogging, G-value (condensate)	0.2	mg	ISO 6452
1:			
Injection	Value	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	≥80	°C	-
Drying Time, Dehumidified Dryer	4 - 8	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. mould temperature	40	°C	-
Max. mould temperature	60	°C	-
Hold pressure range	60 - 80	MPa	-

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Hold pressure time	7.5	s/mm	-
Annealing time, optional	30	min/mm	-
Annealing temperature	160	°C	-

Characteristics

Processing	• Injection Moulding		
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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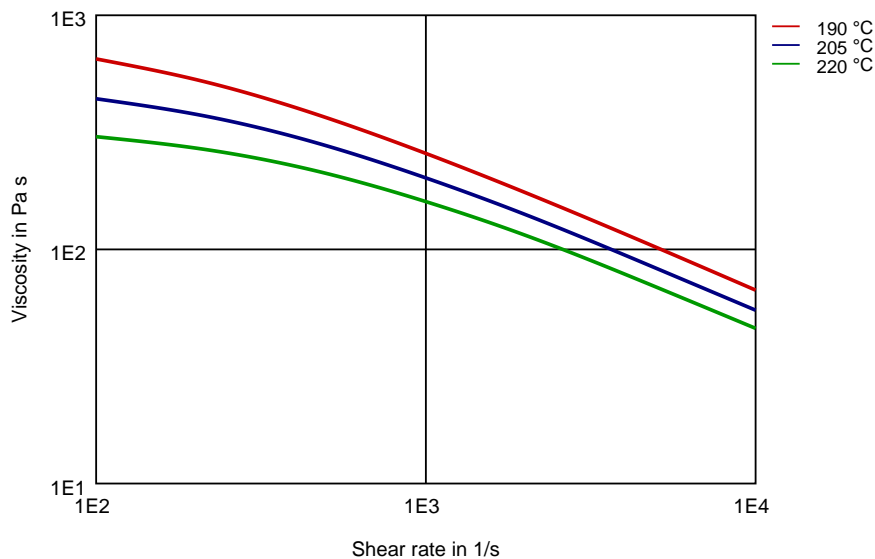


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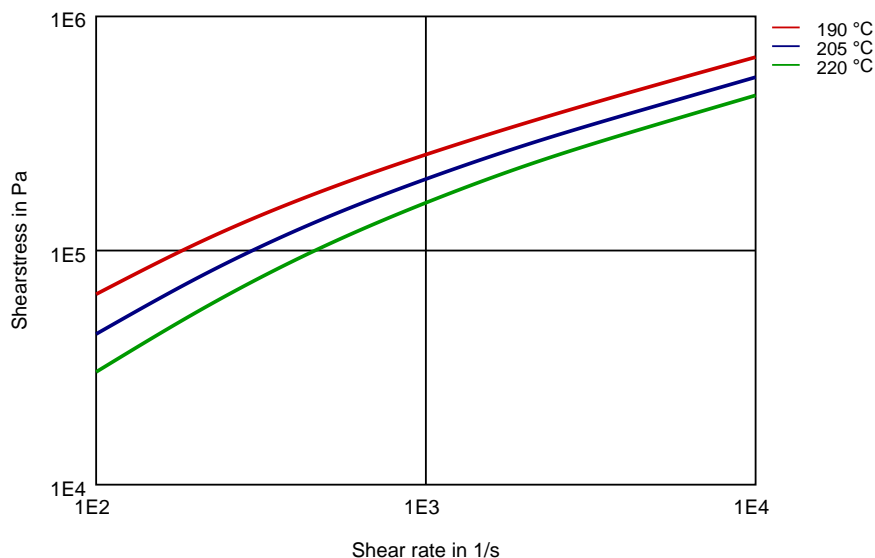
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Diagrams

Viscosity-shear rate



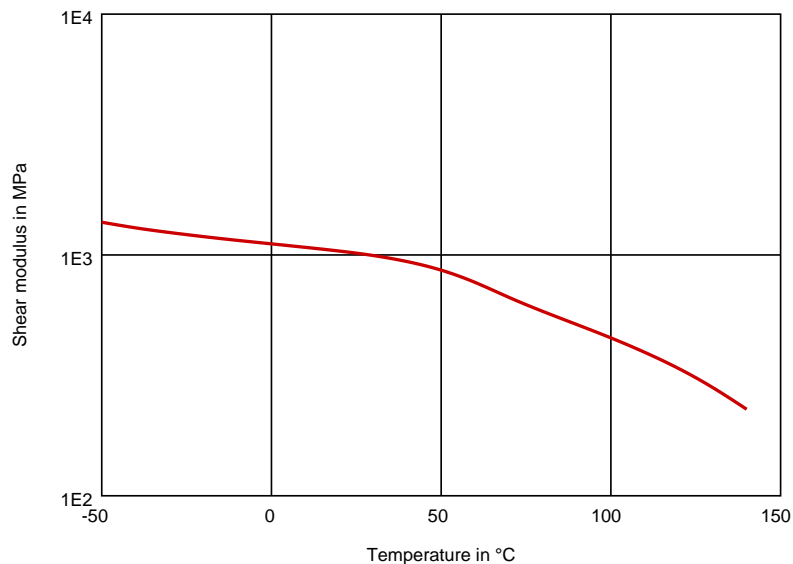
Shearstress-shear rate



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Dynamic Shear modulus-temperature



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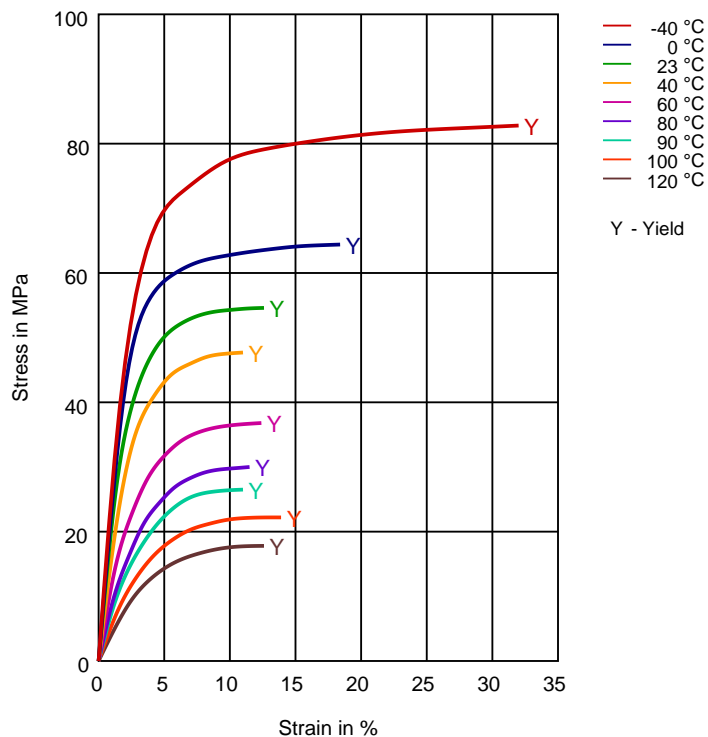
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Stress-strain



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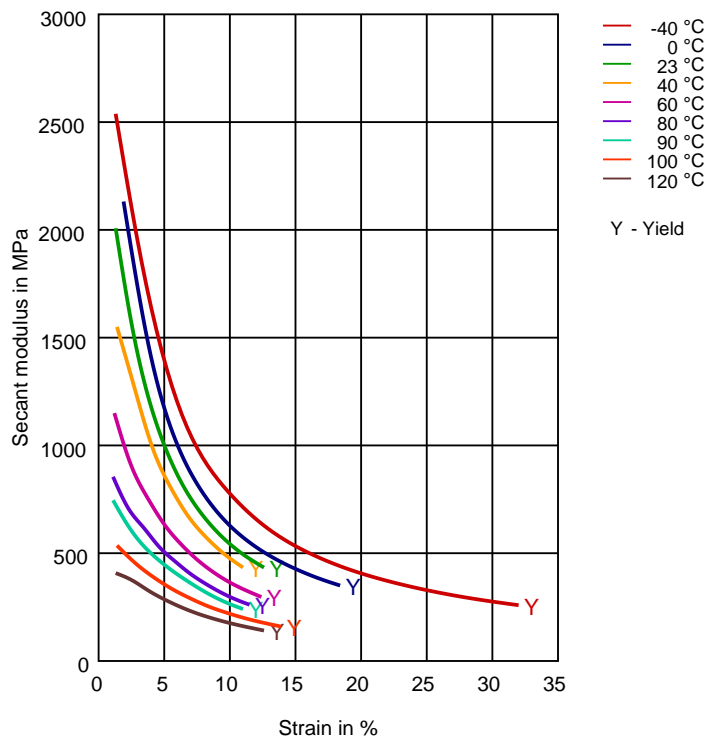
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Secant modulus-strain



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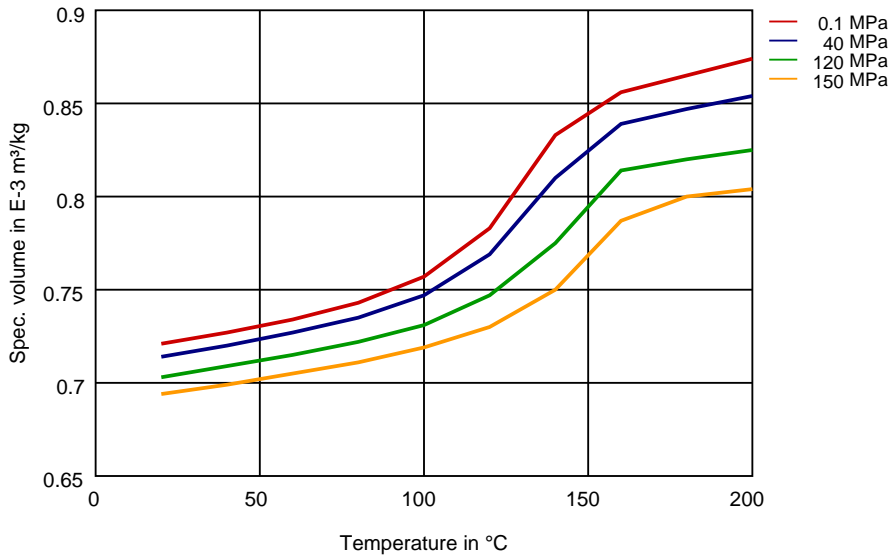
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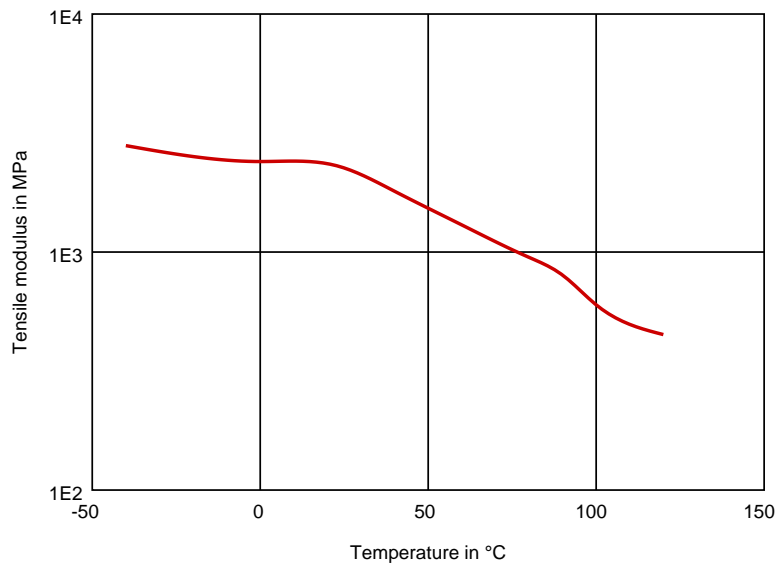
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Specific volume-temperature (pvT)



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 4mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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