DuPont™ Delrin® 500PE 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® 500PE is a medium viscosity acetal homopolymer, an enhanced version of Delrin® 500P with very low VOC emissions for applications in automotive interiors. It has good mechanical properties and improved processing productivity for injection molding.

General information	Value	Unit	Test Standard
Resin Identification	POM	-	ISO 1043
Part Marking Code	POM	-	ISO 11469
Rheological properties	**Value**	**Unit**	**Test Standard**
Melt volume-flow rate	12	cm³/10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Melt mass-flow rate	14	g/10min	ISO 1133
Molding shrinkage, parallel	2.0	%	ISO 294-4, 2577
Molding shrinkage, normal	1.9	%	ISO 294-4, 2577
Mechanical properties	**Value**	**Unit**	**Test Standard**
Tensile Modulus	3300	MPa	ISO 527-1/-2
Yield stress	74	MPa	ISO 527-1/-2
Yield strain	15	%	ISO 527-1/-2
Nominal strain at break	25	%	ISO 527-1/-2
Flexural Modulus	3100	MPa	ISO 178
Charpy impact strength			ISO 179/1eU
73°F	300	kJ/m²	
-22°F	250	kJ/m²	
Charpy notched impact strength			ISO 179/1eA
73°F	10	kJ/m²	
-22°F	8	kJ/m²	
Hardness, Rockwell, M-scale	93	-	ISO 2039-2
Hardness, Rockwell, R-scale	122	-	ISO 2039-2
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	100	°C	
65 psi	158	°C	
Coeff. of linear therm. expansion, parallel	100	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion			ISO 11359-1/-2
normal	100	E-6/K	
Normal, -40-23°C	90	E-6/K	
Parallel, -40-23°C	90	E-6/K	
Flammability	**Value**	**Unit**	**Test Standard**
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<100	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	**Value**	**Unit**	**Test Standard**
Relative permittivity			IEC 60250
100Hz	3.8	-	
1MHz	3.8	-	
Dissipation factor			IEC 60250
100Hz	10	E-4	
1MHz	55	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 60093

To find out more, visit DuPont Performance Polymers or contact nearest DuPont location.

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Surface resistivity	3E14	Ohm	IEC 60093
Electric strength	47	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112
Other properties	**Value**	**Unit**	**Test Standard**
Humidity absorption, 80mil	0.2	%	Sim. to ISO 62
Water absorption, 80mil	0.9	%	Sim. to ISO 62
Density	1420	kg/m³	ISO 1183
Density of melt	1190	kg/m³	-
VDA Properties	**Value**	**Unit**	**Test Standard**
Emissions	<2	mg/kg	VDA 275
Fogging, G-value (condensate)	0.35	mg	ISO 6452
Injection	**Value**	**Unit**	**Test Standard**
Drying Recommended	yes	-	-
Drying Temperature	80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
Melt Temperature Optimum	205	°C	-
Min. melt temperature	200	°C	-
Max. melt temperature	210	°C	-
Mold Temperature Optimum	90	°C	-
Min. mold temperature	80	°C	-
Max. mold temperature	100	°C	-
Hold pressure range	80 - 100	MPa	-
Hold pressure time	8	s/mm	-
Annealing time, optional	30	min/mm	-
Annealing temperature	160	°C	-

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

Processing Texts

Injection molding

Drying is recommended, but not necessary for newly opened packaging stored in a dry location.

Follow the drying guidelines above in the following cases:
· If moisture is above the Processing Moisture Content recommendation,
· When a resin container is damaged,
· When the material is not properly stored in a dry place at room temperature, or
· When packaging stays open for a significant time.

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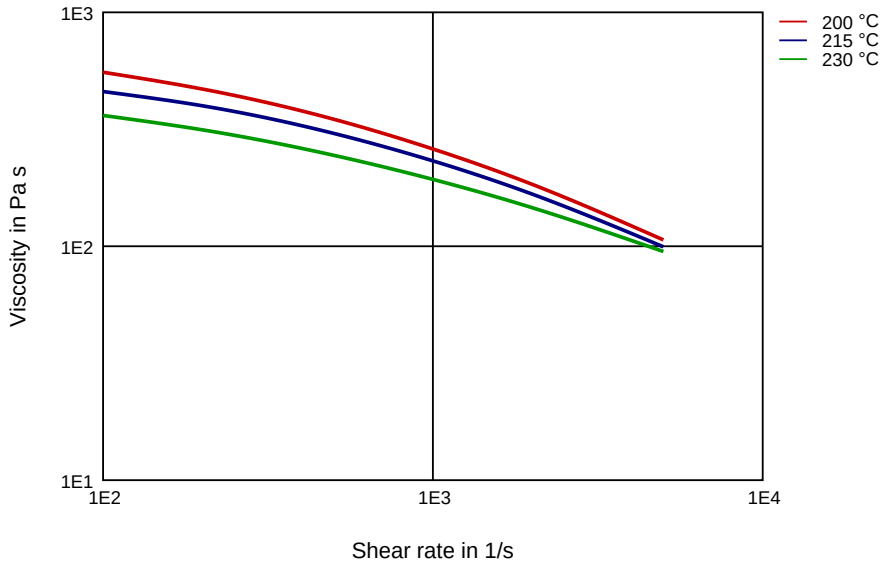
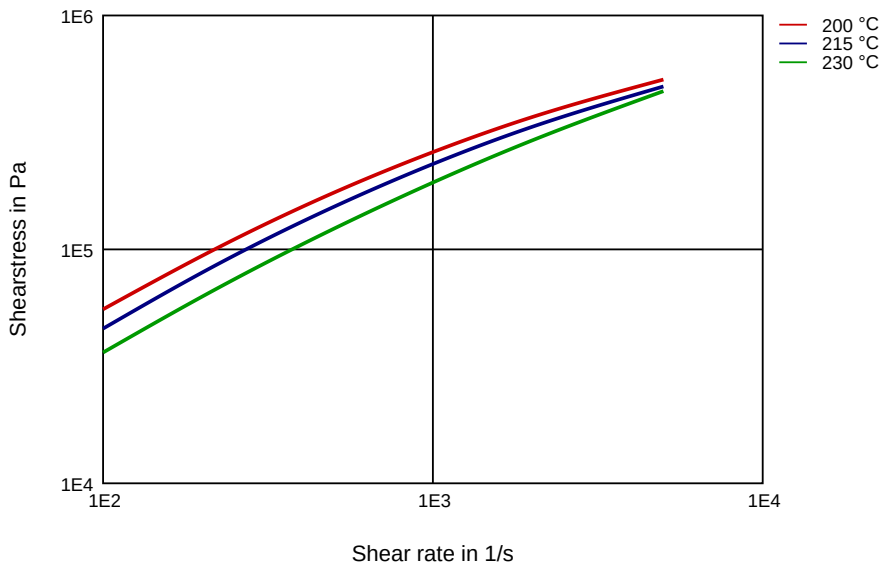
Diagrams

Viscosity-shear rate



Shearstress-shear rate



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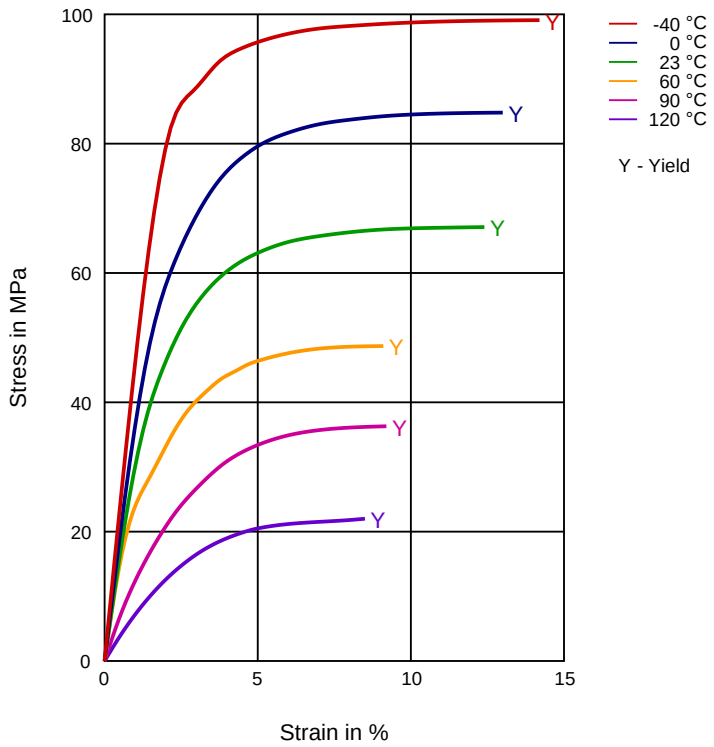
Stress-strain



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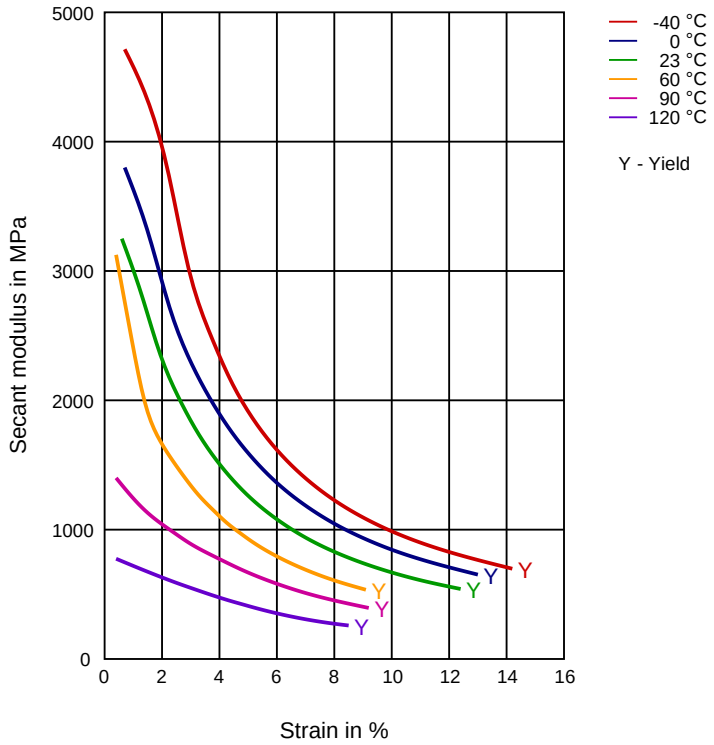
Secant modulus-strain



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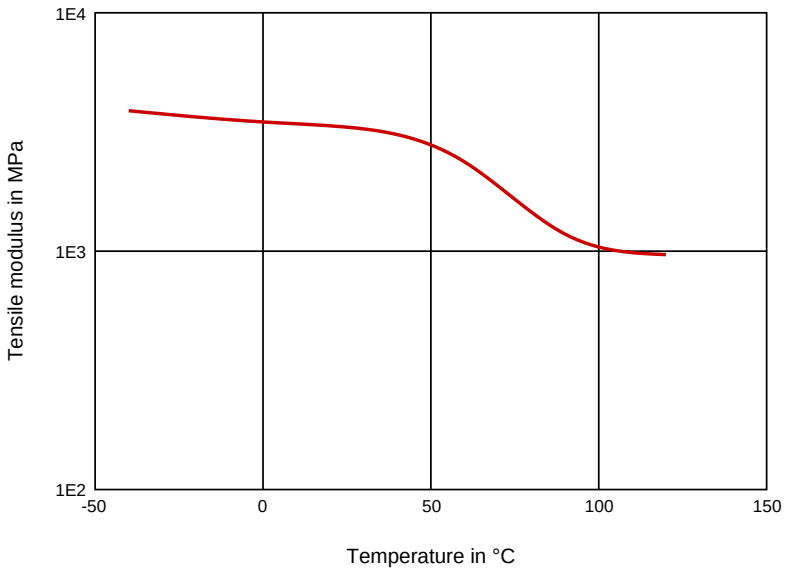
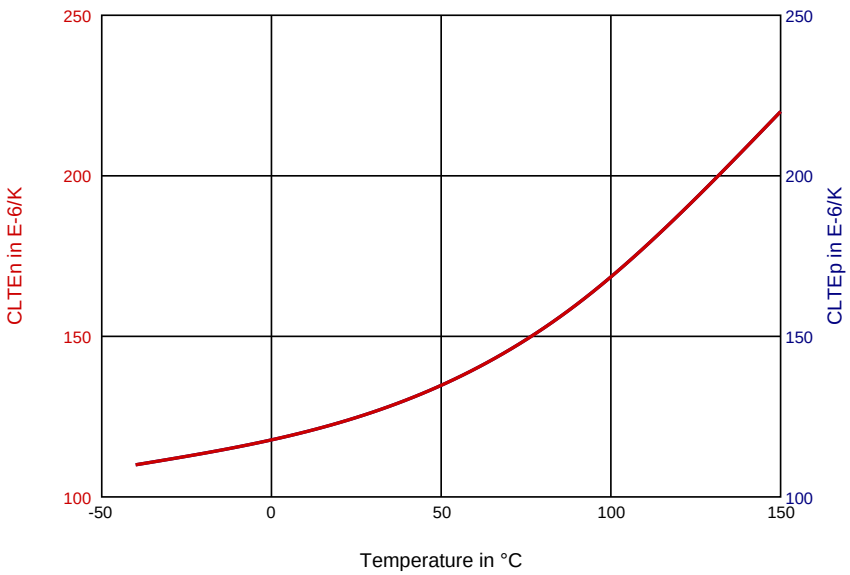
Tensile modulus-temperature



Coeff. of linear thermal expansion, normal (measured on Delrin® 500P NC010)



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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