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® 900P is a general purpose low viscosity acetal homopolymer for multicavity and thin wall molding with improved processing thermal stability and low VOC emissions.

thermal stability and low VOC emissions.			
General information	Value		Test Standard
Resin Identification	POM	-	ISO 1043
Part Marking Code	POM	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate	21	cm ³ /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Melt mass-flow rate	25	g/10min	ISO 1133
Molding shrinkage, parallel	1.9	%	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	71	MPa	ISO 527-1/-2
Yield strain	12	%	ISO 527-1/-2
Nominal strain at break	23	%	ISO 527-1/-2
Flexural Modulus	3000	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	2800	MPa	
1000h	1500	MPa	
Charpy impact strength			ISO 179/1eU
73°F	200	kJ/m²	
-22°F	200	kJ/m²	
Charpy notched impact strength			ISO 179/1eA
73°F	8	kJ/m²	
-22° F	7	kJ/m ²	
Izod notched impact strength			ISO 180/1A
73°F	7	kJ/m²	
-40° F	8	kJ/m²	
Hardness, Rockwell, M-scale	92	-	ISO 2039-2
Hardness, Rockwell, R-scale	120	-	ISO 2039-2
Coefficient of sliding friction, 1h against itself	0.25	-	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	94	°C	
65 psi	162	°C	
Vicat softening temperature, 90° F/h, 11 lbf	160	°C	ISO 306
Coeff. of linear therm. expansion, parallel	120	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion			
normal	120	E-6/K	ISO 11359-1/-2
Parallel, 23-55°C(73-130°F)		E-6/K	ASTM E 831
Eff. thermal diffusivity		m²/s	-
RTI, electrical		-	UL 746B
30mil	50	°C	-
60mil	110	°C	
120mil	110	°Č	
		-	

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Page: 1 of 10

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RTI, impact			UL 746B
30mil	50	°C	
60mil	85	°C	
120mil	90	°C	
RTI, strength			UL 746B
30mil	50	°C	
60mil	90	°C	
120mil	95	°C	
Flammability	Value	Unit	Test Standard
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	0.8	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
Oxygen index	23	%	ISO 4589-1/-2
Glow Wire Flammability Index			IEC 60695-2-1/2
40mil	550	°C	
80mil	550	°C	
120mil	550	°C	
Hot Wire Ignition, 30mil	8 ^[1]	S	UL 746A
FMVSS Class	В	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	20	mm/min	ISO 3795 (FMVSS 302)
1: 0.75mm			
Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	3.8	-	
1MHz		-	
Dissipation factor, 1MHz		E-4	IEC 60250
Volume resistivity		Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Comparative tracking index	600	-	IEC 60112
Other properties	Value	Unit	Test Standard
Humidity absorption, 80mil		%	Sim. to ISO 62
Water absorption, 80mil	1.4	%	Sim. to ISO 62
Density	1420	kg/m ³	ISO 1183
VDA Properties	Value		Test Standard
Emissions		mg/kg	VDA 275
Fogging, F-value (refraction)	95	%	ISO 6452
Fogging, G-value (condensate)	0.2	mg	ISO 6452
Injection	Value		Test Standard
Drying Recommended	yes	-	-
Drying Temperature	80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
Melt Temperature Optimum	215	°C	-
Min. melt temperature	210	°C	-
Max. melt temperature	220	°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		-
Annealing time, optional	30	min/mm	-
Annealing temperature	160	°C	•

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Page: 2 of 10

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

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:

- \cdot If moisture is above the Processing Moisture Content recommendation,
- \cdot When a resin container is damaged,
- \cdot When the material is not properly stored in a dry place at room temperature, or
- \cdot When packaging stays open for a significant time.

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Page: 3 of 10

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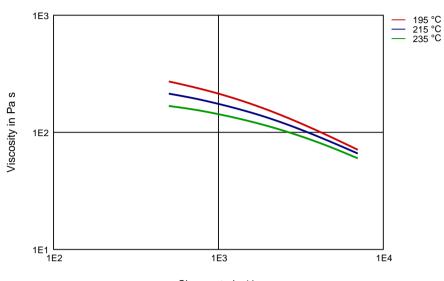
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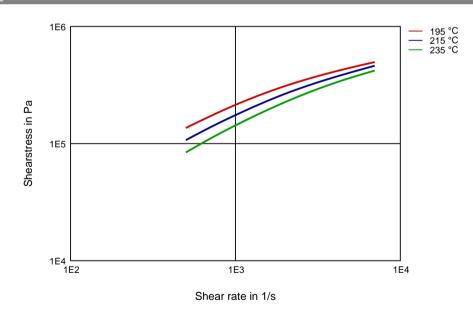
Diagrams

Viscosity-shear rate



Shear rate in 1/s

Shearstress-shear rate



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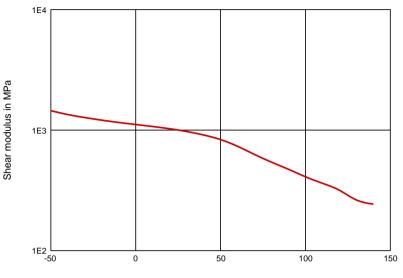
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Page: 4 of 10

Dynamic Shear modulus-temperature



Temperature in °C

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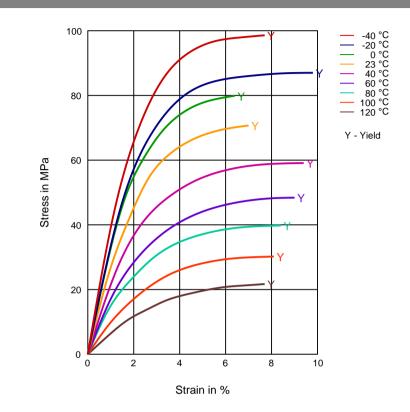
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Stress-strain



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Page: 6 of 10

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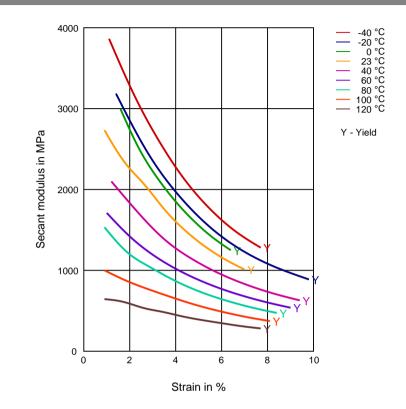
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Secant modulus-strain



Revised: 2017-07-31

Page: 7 of 10

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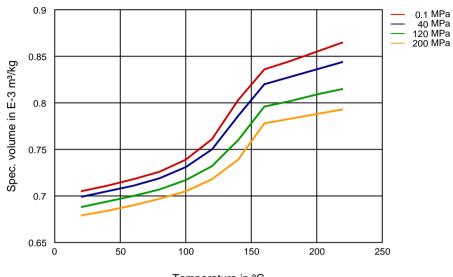
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Specific volume-temperature (pvT)



Temperature in °C

Revised: 2017-07-31

Page: 8 of 10

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Chemical Media Resistanc	e		
Acids	· ····································		
Acetic Acid (5% by			
	on (10% by mass) (23°C)		
Lactic Acid (10% b			
	(36% by mass) (23°C)		
Nitric Acid (40% b			
Sulfuric Acid (38%			
Citric Acid solutio Lactic Acid (10% b Hydrochloric Acid Nitric Acid (40% b Sulfuric Acid (38% Sulfuric Acid (5% b Chromic Acid solu			
-	ition (40% by mass) (23°C)		
Bases			
	e solution (35% by mass) (23°C)		
	e solution (1% by mass) (23°C)		
Ammonium Hydro	xide solution (10% by mass) (23°C)		
Alcohols	(00) 0		
Isopropyl alcohol	(23°C)		
Methanol (23°C)			
Ethanol (23°C)			
Hydrocarbons			
n-Hexane (23°C)			
Toluene (23°C)			
iso-Octane (23°C)			
Ketones			
Acetone (23°C)			
Ethers			
Diethyl ether (23°	(C)		
Mineral oils			
	grade motor oil (23°C)		
	grade motor oil (130°C)		
SAE 80/90 hypoid			
Insulating Oil (23°	(C)		
Standard Fuels			
ISO 1817 Liquid 1			
ISO 1817 Liquid 2			
ISO 1817 Liquid 3			
ISO 1817 Liquid 4			
· · · · ·	hout alcohol (pref. ISO 1817 Liquid		
Standard fuel with	h alcohol (pref. ISO 1817 Liquid 4) (23 ()	
Revised: 2017-07-31			Page: 9 of 10
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UI HIND

DuPont™ Delrin[®] 900P NC010 ACETAL RESIN

Diesel fuel (pref. ISO 1817 Liquid F) (23° C)

Diesel fuel (pref. ISO 1817 Liquid F) (90°C)

Diesel fuel (pref. ISO 1817 Liquid F) (>90°C)

Salt solutions

Sodium Chloride solution (10% by mass) (23°C)

Sodium Hypochlorite solution (10% by mass) (23°C)

Sodium Carbonate solution (20% by mass) (23°C)

- Sodium Carbonate solution (2% by mass) (23°C)
- Zinc Chloride solution (50% by mass) (23°C)

Other

\	Ethyl Acetate (23°C)
X	Hydrogen peroxide (23°C)
X	DOT No. 4 Brake fluid (130°C)
X	Ethylene Glycol (50% by mass) in water (108°C)
/	1% nonylphenoxy-polyethyleneoxy ethanol in water (23 $^\circ\text{C})$
\checkmark	50% Oleic acid + 50% Olive Oil (23°C)
\checkmark	Water (23°C)
X	Water (90°C)
X	Phenol solution (5% by mass) (23°C)

Symbols used:

possibly resistant

Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

Xnot recommended - see explanation

Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

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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Page: 10 of 10