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® 100AL is a high viscosity acetal homopolymer containing an advanced system of lubrication designed for low wear, low friction, and low noise against metals and plastics.

Product Information Value Unit Test Standard Pert Marking Code POM-S ISO 11469 Phendogical properties Value Diff. SO 1133 Melt mass-flow rate, Imperature 190 C ISO 1133 Melt mass-flow rate, Imperature 190 C ISO 1133 Melt mass-flow rate, Load 2.16 kg ISO 1133 Molding shrinkage, parallel 2.0 % ISO 2944, 2577 Molding shrinkage, parallel 2.0 % ISO 2944, 2577 Molding shrinkage, normal 1.7 % ISO 2944, 2577 Molding shrinkage, normal 1.7 % ISO 2974, 2 Tensile Modulus 3000 MPa ISO 527.1/-2 Yield stress 70 MPa ISO 527.1/-2 Plexural Modulus 2800 MPa ISO 180.178 Tensile creep modulus ISO 180.178 ISO 180.178 Tensile creep modulus ISO 179/1eU 73.5 1000h 1500 MPa ISO 179/1eU 73.7 K 1/m² </th <th>and low hoise against metals and plastics.</th> <th></th> <th></th> <th></th>	and low hoise against metals and plastics.			
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Izod notched impact strength, 73°F 8 kJ/m² ISO 180/1A Hardness, Rockwell, M-scale 90 - ISO 2039-2 Hardness, Rockwell, R-scale 122 - ISO 2039-2 Coefficient of sliding friction ASTM 1894 - 1h against itself 0.3 - - 1h against steel 0.5 - - Thermal properties Value Unit Test Standard Melting temperature, 18°F/min 178 °C ISO 11357-1/-3 Temp. of deflection under load 97 °C - 260 psi 97 °C - 65 psi 163 °C - Coeff. of linear therm. expansion, parallel 110 E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, normal 110 E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, normal 110 E-6/K ISO 11359-1/-2 RTI, electrical UL 746B - - 30mil 50 °C - -	73°F	10.5	kJ/m²	
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Hardness, Rockwell, R-scale 122 ISO 2039-2 Coefficient of sliding friction ASTM 1894 1 1h against itself 0.3 - 1h against steel 0.5 - Thermal properties Value Unit Test Standard Melting temperature, 18°F/min 178 °C ISO 75-1/-3 Temp. of deflection under load ISO 75-1/-2 260 psi 97 °C 65 psi 163 °C - - - Coeff. of linear therm. expansion, parallel 110 E-6/K ISO 11359-1/-2 - Coeff. of linear therm. expansion, normal 110 E-6/K ISO 11359-1/-2 - RTI, electrical UL 746B 30mil 50 °C - 30mil 50 °C - - - - RTI, impact UL 746B - - - - - 30mil 50 °C - - - - - 30mil 50		90	-	ISO 2039-2
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65 psi 163 °C Coeff. of linear therm. expansion, parallel 110 E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, normal 110 E-6/K ISO 11359-1/-2 RTI, electrical UL 746B 30mil 50 °C 120mil 50 °C RTI, impact UL 746B 30mil 50 °C 120mil 50 °C RTI, strength UL 746B 30mil 50 °C	260 psi	97	°C	
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120mil 50 °C RTI, impact UL 746B 30mil 50 °C 120mil 50 °C RTI, strength UL 746B 30mil 50 °C				UL 746B
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RTI, strength UL 746B 30mil 50 °C				
30mil 50 °C			-	UL 746B
		50	°C	

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Flammability	Value		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
FMVSS Class	В	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	26	mm/min	ISO 3795 (FMVSS 302)
Other properties	Value	Unit	Test Standard
Density	1400	kg/m³	ISO 1183
VDA Properties	Value	Unit	Test Standard
Emissions	<8 ^[1]	mg/kg	VDA 275
1: <5			
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	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	90 - 110	MPa	-
Hold pressure time	8	s/mm	-
Annealing time, optional	30	min/mm	-
Annealing temperature	160	°C	-
Extrusion	Value	Unit	Test Standard
Drying Temperature	75 - 85	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
Melt Temperature Optimum	200	°C	-
Melt Temperature Range	195 - 205	°C	-

 Injection Molding 	 Sheet Extrusion 		
 Profile Extrusion 	Other Extrusion		
 Pellets 			
 Lubricants 	Release agent		
 North America 	Asia Pacific	 Near East/Africa 	
 Europe 	 South and Central America 	 Global 	
	Profile Extrusion Pellets Lubricants North America	Profile Extrusion Other Extrusion Pellets Lubricants North America Asia Pacific	

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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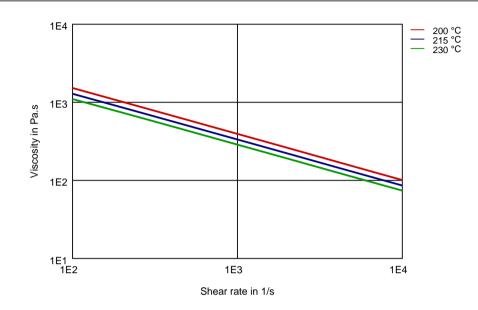
Europe/Middle East/Africa Tel: +41 22 717 51 11



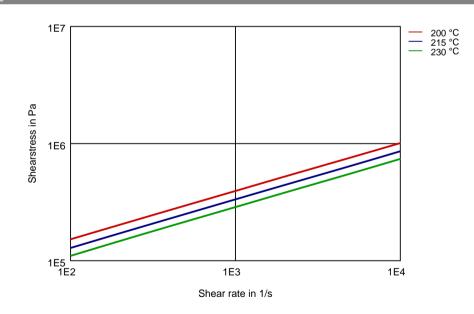
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Diagrams

Viscosity-shear rate



Shearstress-shear rate



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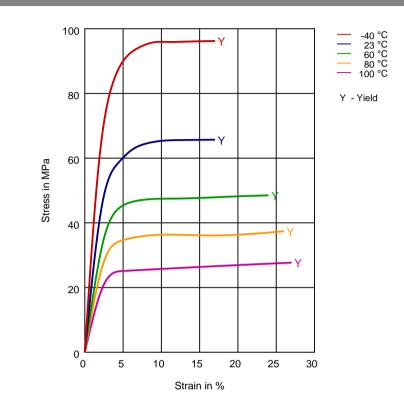
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Stress-strain



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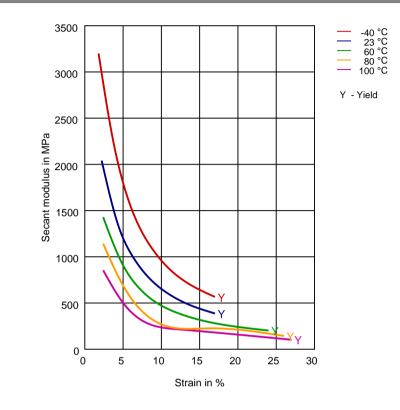
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Secant modulus-strain



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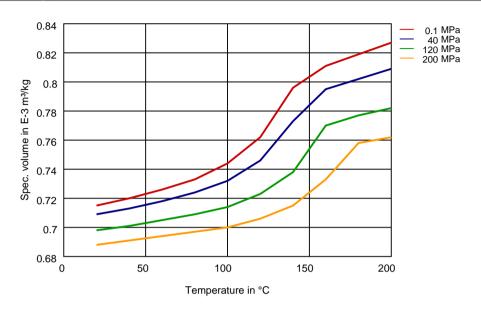
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Specific volume-temperature (pvT)



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Chemi	cal Media Resistance
Acids	
1	Acetic Acid (5% by mass) (23°C)
	Citric Acid solution (10% by mass) (23°C)
X I	Lactic Acid (10% by mass) (23°C)
X	Hydrochloric Acid (36% by mass) (23°C)
X	Nitric Acid (40% by mass) (23°C)
X	Sulfuric Acid (38% by mass) (23°C)
X	Sulfuric Acid (5% by mass) (23°C)
****	Chromic Acid solution (40% by mass) (23°C)
Bases	
X	Sodium Hydroxide solution (35% by mass) (23°C)
X	Sodium Hydroxide solution (1% by mass) (23°C)
X	Ammonium Hydroxide solution (10% by mass) (23°C)
Alcoho	ols
\	Isopropyl alcohol (23°C)
\checkmark	Methanol (23°C)
\checkmark	Ethanol (23°C)
Hydroo	carbons
\checkmark	n-Hexane (23°C)
\checkmark	Toluene (23°C)
\checkmark	iso-Octane (23°C)
Ketone	25
\checkmark	Acetone (23°C)
Ethers	
\checkmark	Diethyl ether (23°C)
Minera	al oils
\checkmark	SAE 10W40 multigrade motor oil (23°C)
X	SAE 10W40 multigrade motor oil (130°C)
X	SAE 80/90 hypoid-gear oil (130°C)
_	Insulating Oil (23°C)
X	Motor oil OS206 304 Ref.Eng.Oil, ISP (135°C)
X	Automatic hypoid-gear oil Shell Donax TX (135°C)
X	Hydraulic oil Pentosin CHF 202 (125°C)
Standa	ard Fuels
\checkmark	ISO 1817 Liquid 1 - E5 (60°C)
\checkmark	ISO 1817 Liquid 2 - M15E4 (60°C)
\checkmark	ISO 1817 Liquid 3 - M3E7 (60°C)

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ISO 1817 Liquid 4 - M15 (60°C)

- Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- 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	1% nonylphenoxy-polyethyleneoxy ethanol in water (23 $^{\circ}$ C)
\checkmark	50% Oleic acid + 50% Olive Oil (23°C)

Water (23°C)

- Water (90°C)
 - Phenol solution (5% by mass) $(23^{\circ}C)$

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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