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® 100 is a high viscosity acetal homopolymer for use in easy-to-fill molds. Delrin® 100 provides optimum mechanical performance	ce
with its excellent combination of toughness and strength.	

General information	Value	Unit	Test Standard
Resin Identification	POM		ISO 1043
Part Marking Code		-	ISO 11469
Rheological properties	Value		Test Standard
Melt volume-flow rate		cm ³ /10min	ISO 1133
Temperature	1.9	°C	ISO 1133
Load	2.16		ISO 1133
Melt mass-flow rate		g/10min	ISO 1133
Molding shrinkage, parallel	2.2	%	ISO 294-4, 2577
Molding shrinkage, parallel	1.8	%	ISO 294-4, 2577
	Value		,
Mechanical properties Tensile Modulus	3000		Test Standard ISO 527-1/-2
Yield stress			ISO 527-17-2 ISO 527-17-2
Yield strain	26	%	ISO 527-1/-2
Nominal strain at break	45	%	ISO 527-1/-2
Flexural Modulus	2900		ISO 178
Flexural Stress at 3.5%	79	MPa	ISO 178
Compressive strength	110	MPa	ISO 604
Tensile creep modulus	2000		ISO 899-1
1h	2900	MPa	
1000h	1600	MPa	150 470 (4 - 1)
Charpy impact strength			ISO 179/1eU
73°F		kJ/m ²	
-22°F	425	kJ/m²	150 170 / 1
Charpy notched impact strength			ISO 179/1eA
73°F	15		
-22°F	14	kJ/m²	100 100 111
Izod notched impact strength			ISO 180/1A
73°F		kJ/m²	
-40°F		kJ/m ²	
Ball indentation hardness, H 358/30			ISO 2039-1
Hardness, Rockwell, M-scale		-	ISO 2039-2
Hardness, Rockwell, R-scale	121	-	ISO 2039-2
Thermal properties	Value		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	160	°C	
Vicat softening temperature			ISO 306
90°F/h, 11 lbf	160	°C	
90°F, 2 lbf	175	°C	
Coeff. of linear therm. expansion, parallel	110	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion			ISO 11359-1/-2
normal		E-6/K	
Normal, -40-23°C		E-6/K	
Parallel, -40-23°C	100	E-6/K	

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

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Eff. thermal diffusivity 1E-7 m ² /s - RTI, electrical UL 746B 30ml 105 'C 30ml 105 'C 120ml 105 'C 120ml 105 'C 120ml 105 'C 240ml 105 'C UL 746B 100ml	Spec. heat capacity of melt	3000	J/(kg K)	<u>.</u>
30mil 50 °C 60mil 105 °C 120mil 105 °C 240mil 105 °C 70mil 85 °C 30mil 85 °C 120mil 85 °C 120mil 85 °C 120mil 85 °C 120mil 85 °C 240mil 90 °C 240mil 100 Process tandard 100 recognition Yes UL 94 100 r				-
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	Processing Moisture Content Melt Temperature Optimum	≤0.2 215	% ° C	- -

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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 Stand	ard
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	-	
Characteristics					
Dre consis a	 Injection Molding 	• She	eet Extrusion		
Processing	 Profile Extrusion 	• Otl	her Extrusion		
Delivery form	Pellets				
Additives	Release agent				
Regional Availability	North America	• Asi	a Pacific		 Near East/Africa
Regional Availability	• Europe	• Sou	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:

- · 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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Diagrams

Viscosity-shear rate



Shearstress-shear rate



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Dynamic Shear modulus-temperature



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Stress-strain



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Secant modulus-strain



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Specific volume-temperature (pvT)



Tensile modulus-temperature



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Chemical Media Resistance

Chemi	cal Media Resistance
Acids	
\checkmark	Acetic Acid (5% by mass) (23°C)
X	Citric Acid solution (10% by mass) (23°C)
****	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)
X	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	ls
\checkmark	Isopropyl alcohol (23°C)
1	Methanol (23°C)
\checkmark	Ethanol (23°C)
Hydroc	carbons
1	n-Hexane (23°C)
1	Toluene (23°C)
\checkmark	iso-Octane (23°C)
Ketone	25
\checkmark	Acetone (23°C)
Ethers	
\checkmark	Diethyl ether (23°C)
Minera	
millera	SAE 10W40 multigrade motor oil (23°C)
×.	SAE 10W40 multigrade motor oil (130°C)
- <u>\$</u>	SAE 80/90 hypoid-gear oil (130°C)
2	Insulating Oil (23°C)
X	Motor oil OS206 304 Ref.Eng.Oil, ISP (135°C)
Ŷ	Automatic hypoid-gear oil Shell Donax TX (135°C)
Ŷ	Hydraulic oil Pentosin CHF 202 (125°C)
Standa	rd Fuels
	ISO 1817 Liquid 1 - E5 (60°C)
· /	ISO 1817 Liquid 2 - M15E4 (60°C)
· /	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)
- X X Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
 - Diesel fuel (pref. ISO 1817 Liquid F) (>90°C)
 - Diesel EN 590 (100°C)

Salt solutions

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

1 Ethyl Acetate (23°C) XXXX Hydrogen peroxide (23°C) DOT No. 4 Brake fluid (130°C) DOT No. 4 Brake fluid (120°C) Ethylene Glycol (50% by mass) in water (108°C) 1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C) 50% Oleic acid + 50% Olive Oil (23°C) Water (23°C) Water (90°C) 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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