

DuPont™ Delrin® 510GR NC000

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® 510GR is a 10% glass-reinforced acetal homopolymer for injection molding. It has high strength, stiffness, and high deflection temperature and excellent creep resistance.

General information	Value	Unit	Test Standard
Resin Identification	POM-GF10	-	ISO 1043
Part Marking Code	POM-GF10	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate	12	cm ³ /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Molding shrinkage, parallel	1.0	%	ISO 294-4, 2577
Molding shrinkage, normal	1.4	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	5500	MPa	ISO 527-1/-2
Stress at break	95	MPa	ISO 527-1/-2
Strain at break	4.3	%	ISO 527-1/-2
Flexural Modulus	5250	MPa	ISO 178
Flexural Strength	175 ^[1]	MPa	ISO 178
Flexural Stress at 3.5%	160	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	4800	MPa	
1000h	3500	MPa	
Charpy impact strength			ISO 179/1eU
73°F	50	kJ/m ²	
-22°F	50	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
73°F	5	kJ/m ²	
-22°F	5	kJ/m ²	
Izod notched impact strength, 73°F	5	kJ/m ²	ISO 180/1A
1: Strain at break = 4.2%			
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	164	°C	
65 psi	174	°C	
Vicat softening temperature, 90°F/h, 11 lbf	160	°C	ISO 306
Coeff. of linear therm. expansion, parallel	70	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	100	E-6/K	ISO 11359-1/-2
RTI, electrical, 30mil	50	°C	UL 746B
RTI, impact, 30mil	50	°C	UL 746B
RTI, strength, 30mil	50	°C	UL 746B
Flammability	Value	Unit	Test Standard
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
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	46	mm/min	ISO 3795 (FMVSS 302)

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

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Toll-Free (USA): 800 441-0575

Asia Pacific

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Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	3.7	-	
1MHz	3.9	-	
Volume resistivity	1E11	Ohm*m	IEC 60093
Comparative tracking index	600	-	IEC 60112
Other properties	Value	Unit	Test Standard
Humidity absorption, 80mil	0.16	%	Sim. to ISO 62
Water absorption, 80mil	1.1	%	Sim. to ISO 62
Density	1490	kg/m ³	ISO 1183
VDA Properties	Value	Unit	Test Standard
Emissions	<8	mg/kg	VDA 275
Fogging, G-value (condensate)	0.65	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	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	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	• 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:

- 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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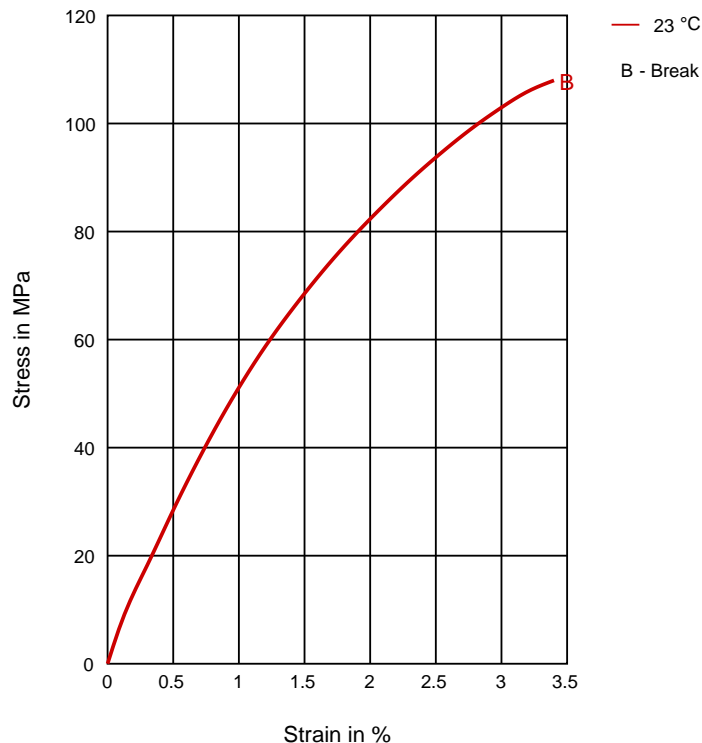


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Diagrams

Stress-strain



Revised: 2017-07-24

Page: 3 of 4

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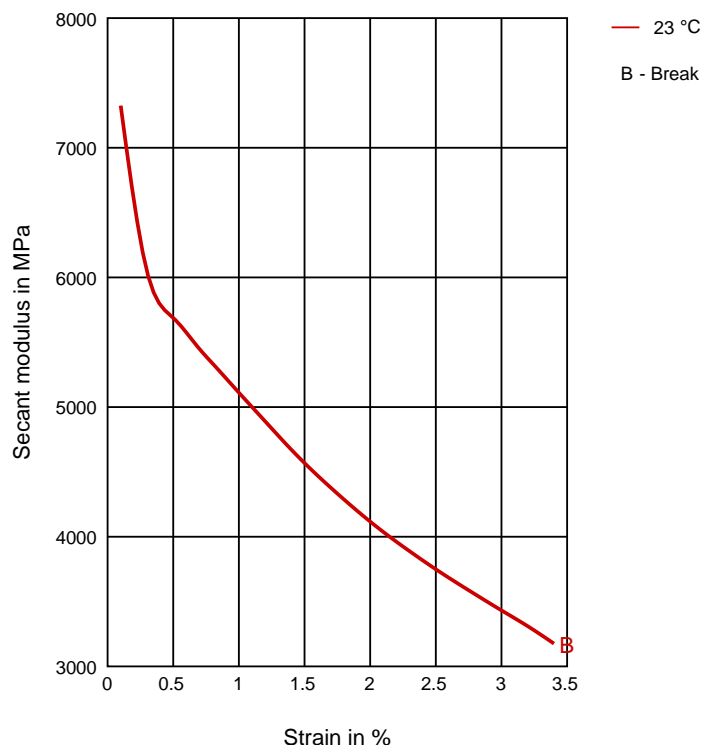
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Secant modulus-strain



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: 4 of 4

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