

# 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 moulding. 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 <sup>3</sup> /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Moulding shrinkage, parallel	1.0	%	ISO 294-4, 2577
Moulding 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 <sup>[1]</sup>	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
23°C	50	kJ/m <sup>2</sup>	
-30°C	50	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
23°C	5	kJ/m <sup>2</sup>	
-30°C	5	kJ/m <sup>2</sup>	
Izod notched impact strength, 23°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Hardness, Rockwell, M-scale	100	-	ISO 2039-2
Hardness, Rockwell, R-scale	122	-	ISO 2039-2
1: Strain at break = 4.2%			
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	178	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	164	°C	
0.45 MPa	174	°C	
Vicat softening temperature, 50°C/h, 50N	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, 0.75mm	50	°C	UL 746B
RTI, impact, 0.75mm	50	°C	UL 746B
RTI, strength, 0.75mm	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)

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

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Burning rate, Thickness 1 mm	46	mm/min	ISO 3795 (FMVSS 302)
<b>Electrical properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Relative permittivity			IEC 62631-2-1
100Hz	3.7	-	
1MHz	3.9	-	
Volume resistivity	1E11	Ohm*m	IEC 62631-3-1
Comparative tracking index	600	-	IEC 60112
<b>Other properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Humidity absorption, 2mm	0.16	%	Sim. to ISO 62
Water absorption, 2mm	1.1	%	Sim. to ISO 62
Density	1490	kg/m <sup>3</sup>	ISO 1183
<b>VDA Properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Emissions	<8	mg/kg	VDA 275
Fogging, G-value (condensate)	0.65	mg	ISO 6452
<b>Injection</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
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. mould temperature	80	°C	-
Max. mould 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 Moulding
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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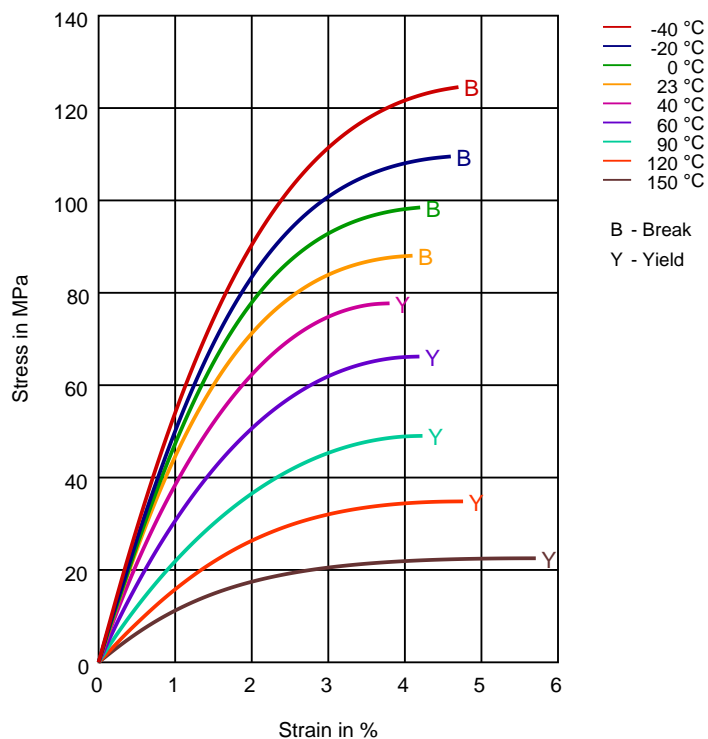


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## ACETAL RESIN

Diagrams

Stress-strain



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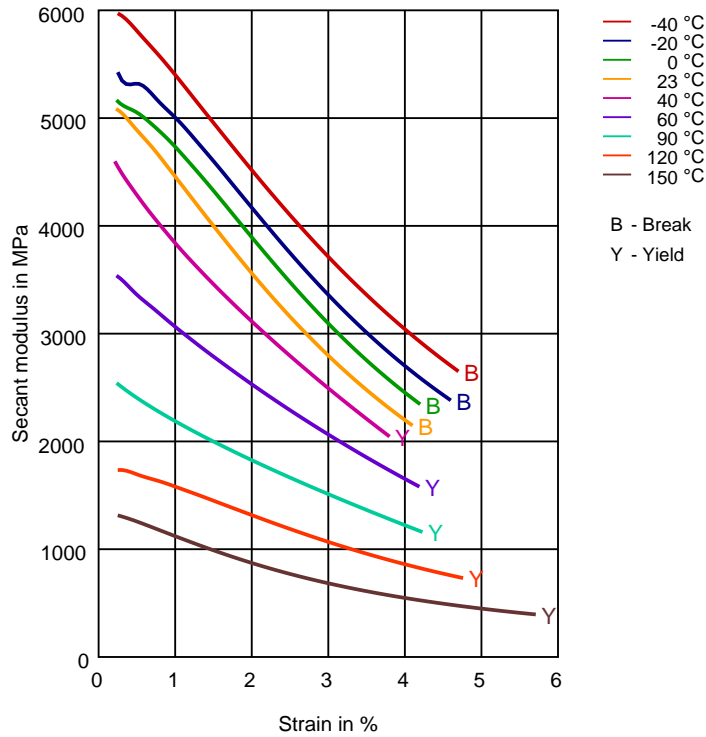


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## ACETAL RESIN

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 4mm (Hytrell® measured at 2 mm), IEC Electrical properties measured at 2mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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