



# Delrin® 510GR NC000

## ACETAL RESIN

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.

### Product information

Resin Identification	POM-GF10	ISO 1043
Part Marking Code	>POM-GF10<	ISO 11469

### Rheological properties

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

### Typical mechanical properties

Tensile Modulus	5500 MPa	ISO 527-1/-2
Stress at break	105 MPa	ISO 527-1/-2
Strain at break	3.7 %	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, 1h	4800 MPa	ISO 899-1
Tensile creep modulus, 1000h	3500 MPa	ISO 899-1
Charpy impact strength, 23°C	50 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	50 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	6.5 kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	5 kJ/m <sup>2</sup>	ISO 179/1eA
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
Poisson's ratio	0.35 -	

[1]: Strain at break = 4.2%



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### Thermal properties

Melting temperature, 10°C/min	178 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	164 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	174 °C	ISO 75-1/-2
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

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)

### Electrical properties

Relative permittivity, 100Hz	3.7 -	IEC 62631-2-1
Relative permittivity, 1MHz	3.9 -	IEC 62631-2-1
Volume resistivity	1E11 Ohm.m	IEC 62631-3-1
Comparative tracking index	600 -	IEC 60112

### Other properties

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

### VDA Properties

Fogging, G-value (condensate)	0.65 mg	ISO 6452
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### Injection

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
Max. screw tangential speed	0.3 m/s
Mold Temperature Optimum	90 °C
Min. mould temperature	80 °C



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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

Additives

Release agent

## Additional Information

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:

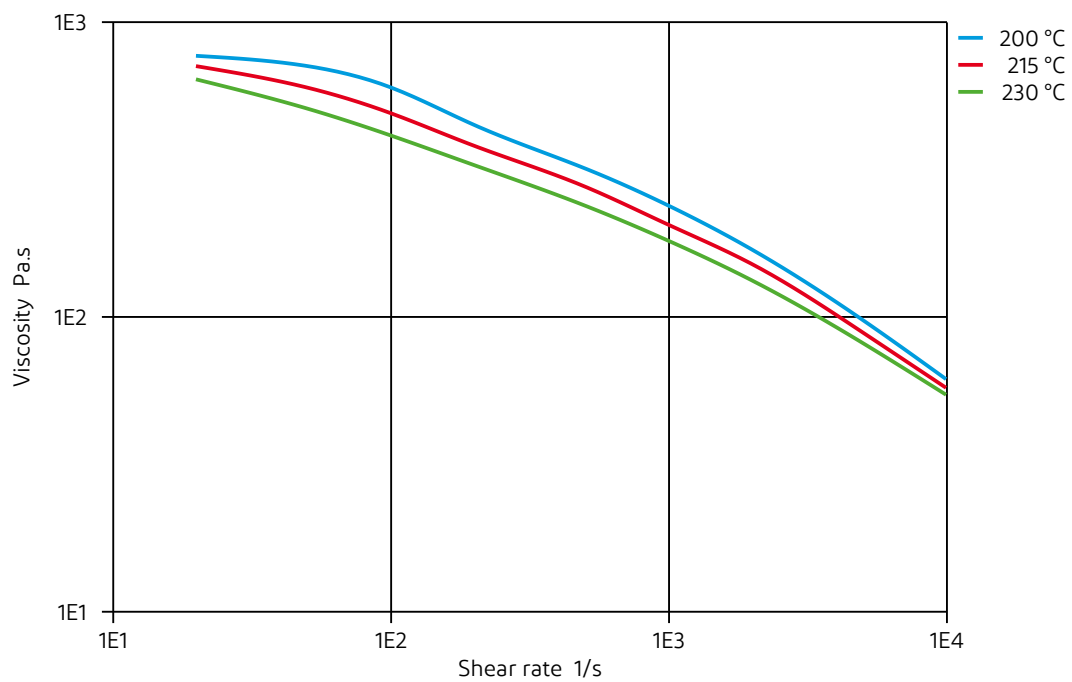
- If moisture is above the Processing Moisture Content recommendation,
- When a resin container is damaged,
- When the material is not properly stored in a dry place at room temperature, or
- When packaging stays open for a significant time.



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Viscosity-shear rate

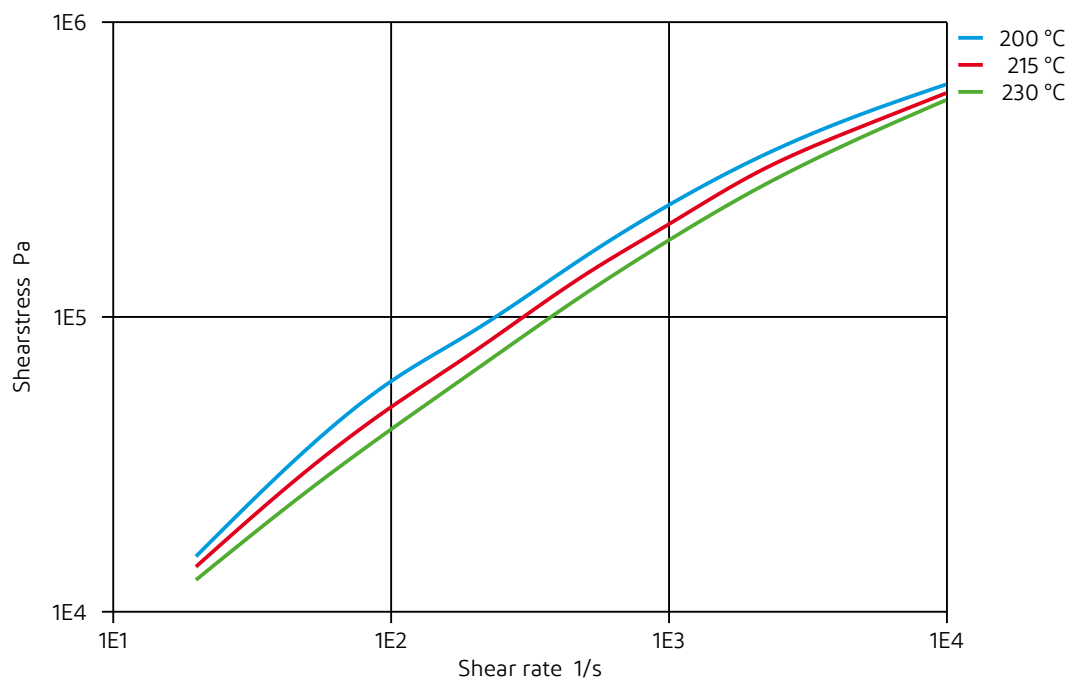




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Shearstress-shear rate

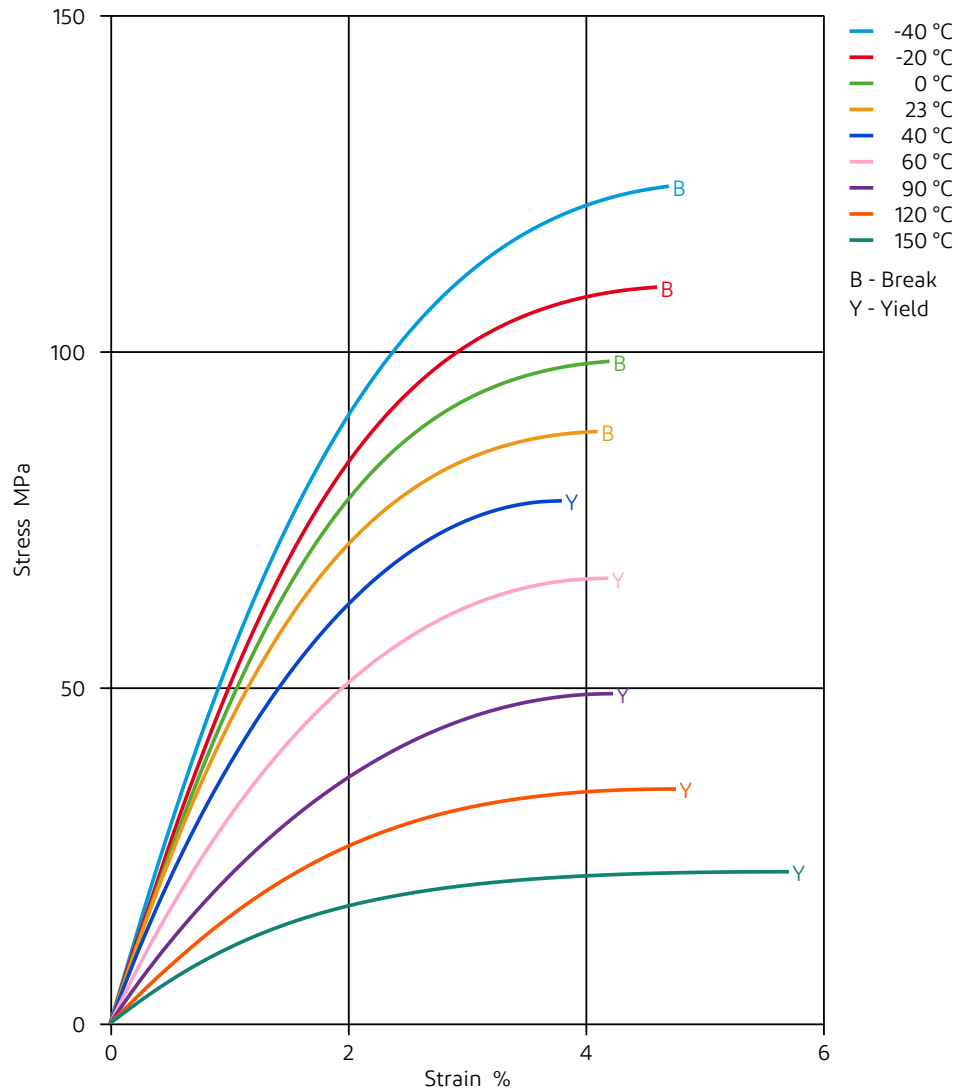




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## Stress-strain

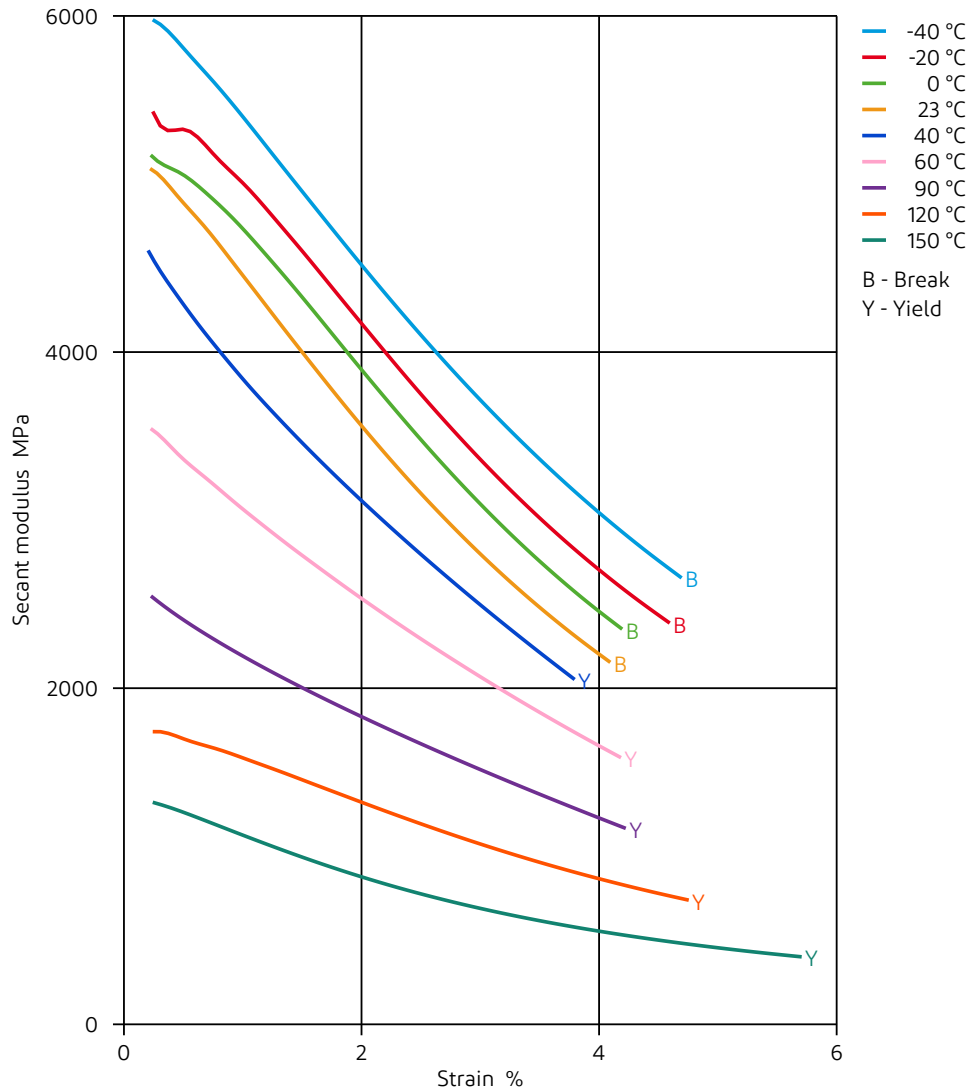




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## Secant modulus-strain



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