# Delrin® 525GR 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® 525GR is a 25% glass-reinforced acetal homopolymer for injection molding. It has very high strength, stiffness, and high deflection temperature, excellent creep resistance, and good notched impact properties.

## Product information

| | | |
|---|---|---|
| Resin Identification | POM-GF25 | ISO 1043 |
| Part Marking Code | >POM-GF25< | ISO 11469 |

## Rheological properties

| | | | |
|---|---|---|---|
| Melt mass-flow rate | 8 | g/10min | ISO 1133 |
| Melt mass-flow rate, Temperature | 190 | °C | ISO 1133 |
| Melt mass-flow rate, Load | 2.16 | kg | ISO 1133 |
| Moulding shrinkage, parallel | 0.4 | % | ISO 294-4, 2577 |
| Moulding shrinkage, normal | 1.2 | % | ISO 294-4, 2577 |

## Typical mechanical properties

| | | | |
|---|---|---|---|
| Tensile Modulus | 9500 | MPa | ISO 527-1/-2 |
| Stress at break | 160 | MPa | ISO 527-1/-2 |
| Strain at break | 3 | % | ISO 527-1/-2 |
| Flexural Modulus | 9150 | MPa | ISO 178 |
| Flexural Strength | 245 | MPa | ISO 178 |
| Compressive strength | 210 | MPa | ISO 604 |
| Tensile creep modulus, 1h | 8500 | MPa | ISO 899-1 |
| Tensile creep modulus, 1000h | 6000 | MPa | ISO 899-1 |
| Charpy impact strength, 23°C | 60 | kJ/m² | ISO 179/1eU |
| Charpy impact strength, -30°C | 50 | kJ/m² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 10 | kJ/m² | ISO 179/1eA |
| Charpy notched impact strength, -30°C | 10 | kJ/m² | ISO 179/1eA |
| Hardness, Rockwell, M-scale | 101 | | ISO 2039-2 |
| Hardness, Rockwell, R-scale | 122 | | ISO 2039-2 |
| Poisson's ratio | 0.34 | | |

[1]: Strain at break = 3.2%

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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 | 172 | °C | ISO 75-1/-2 |
| Temp. of deflection under load, 0.45 MPa | 176 | °C | ISO 75-1/-2 |
| Coeff. of linear therm. expansion, parallel | 35 | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal | 100 | E-6/K | ISO 11359-1/-2 |
| Thermal conductivity | 0.46 | W/(m K) | ISO 22007-2 |
| RTI, electrical, 0.75mm | 50 | °C | UL 746B |
| RTI, electrical, 1.5mm | 50 | °C | UL 746B |
| RTI, electrical, 3mm | 50 | °C | UL 746B |
| RTI, impact, 0.75mm | 50 | °C | UL 746B |
| RTI, impact, 1.5mm | 50 | °C | UL 746B |
| RTI, impact, 3mm | 50 | °C | UL 746B |
| RTI, strength, 0.75mm | 50 | °C | UL 746B |
| RTI, strength, 1.5mm | 50 | °C | UL 746B |
| RTI, strength, 3mm | 50 | °C | UL 746B |

## Flammability

| | | | |
|---|---|---|---|
| Burning Behav. at 1.5mm 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 | 0.75 | mm | IEC 60695-11-10 |
| UL recognition | yes | | UL 94 |
| FMVSS Class | B | | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | 49 | mm/min | ISO 3795 (FMVSS 302) |

## Electrical properties

| | | | |
|---|---|---|---|
| Relative permittivity, 100Hz | 3.7 | | IEC 62631-2-1 |
| Relative permittivity, 1MHz | 3.8 | | IEC 62631-2-1 |
| Volume resistivity | 1E12 | Ohm.m | IEC 62631-3-1 |
| Comparative tracking index | 600 | | IEC 60112 |

## Other properties

| | | | |
|---|---|---|---|
| Humidity absorption, 2mm | 0.17 | % | Sim. to ISO 62 |
| Water absorption, 2mm | 1.26 | % | Sim. to ISO 62 |
| Density | 1590 | kg/m³ | ISO 1183 |

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## VDA Properties

| | | | |
|---|---|---|---|
| Fogging, F-value (refraction) | 90[DS, AMin] | % | ISO 6452 |
| Fogging, G-value (condensate) | 1.2 | mg | ISO 6452 |

[DS]: Derived from similar grade

## 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 |
| 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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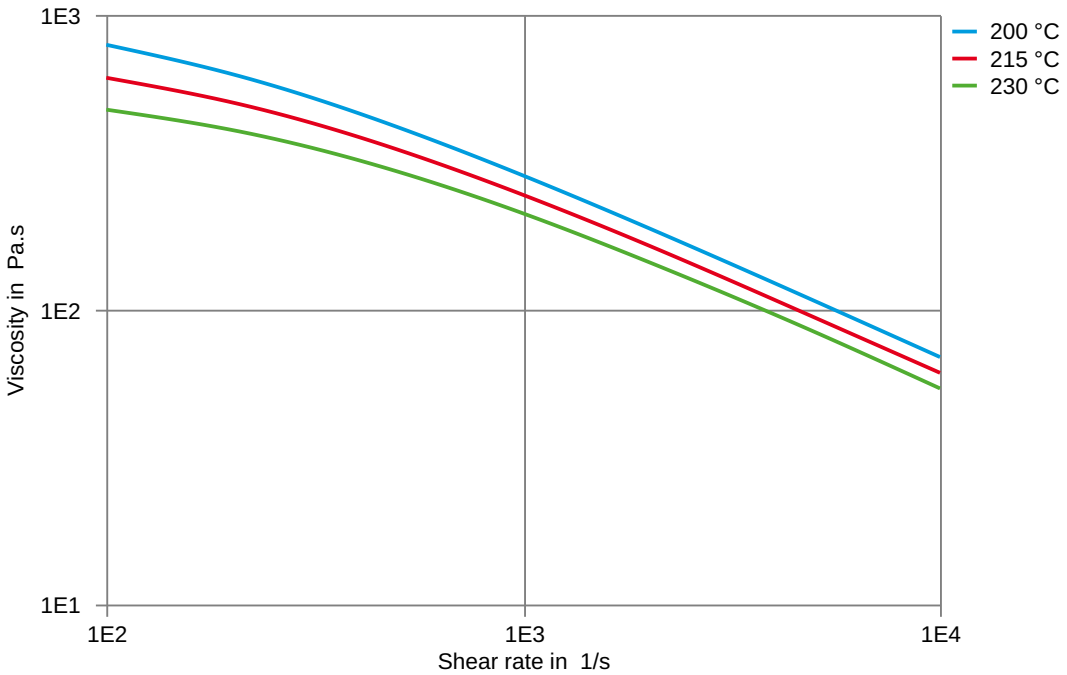
## Viscosity-shear rate



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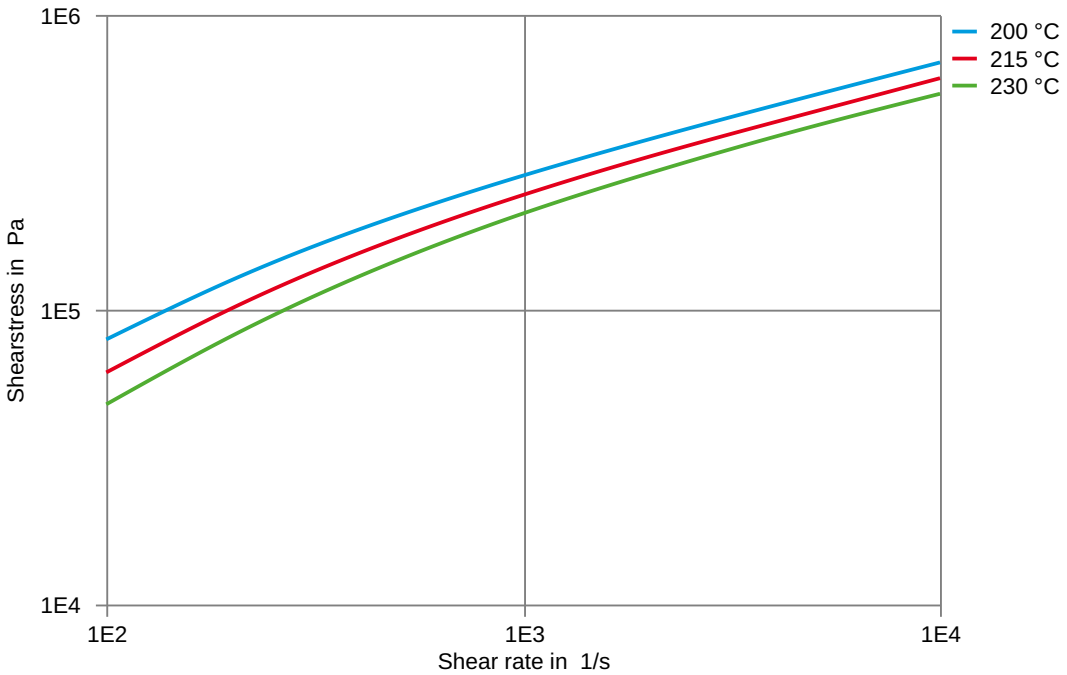
## Shearstress-shear rate



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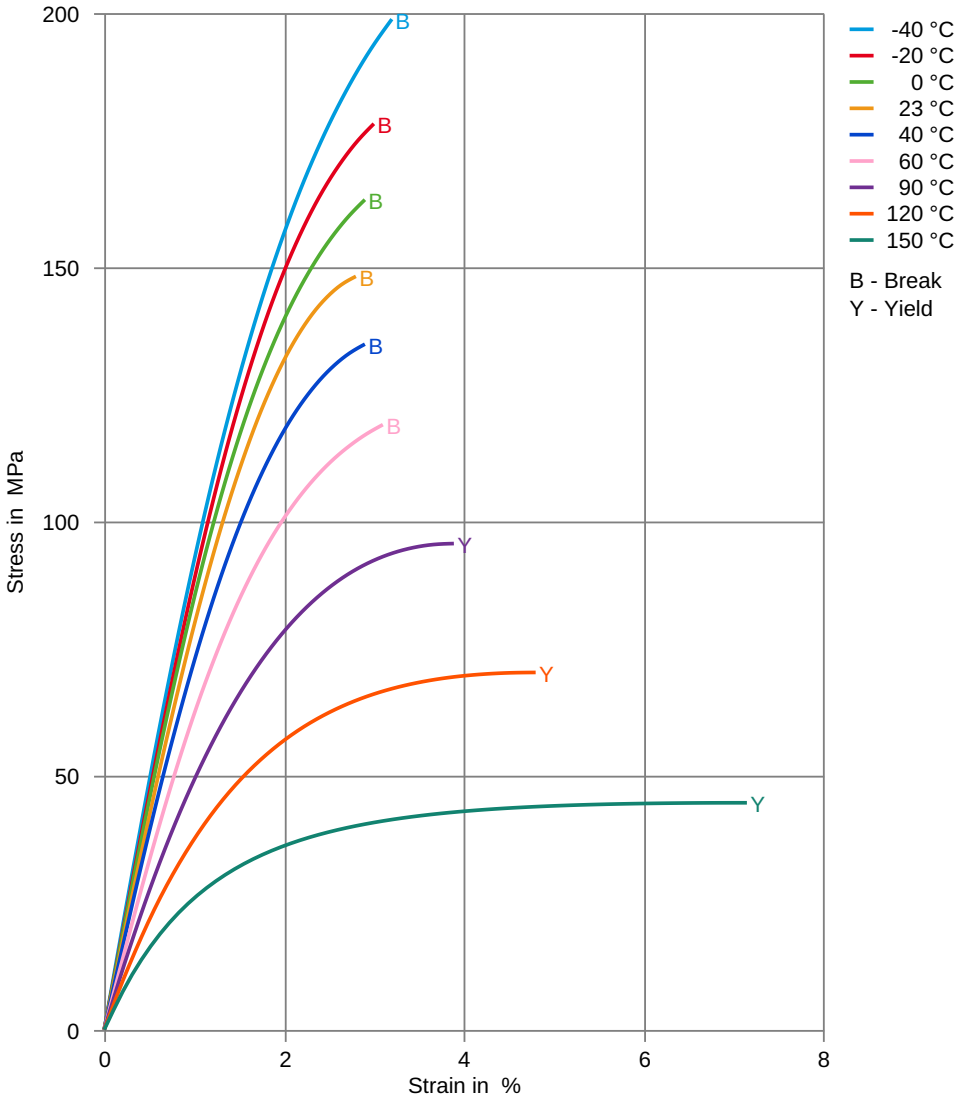
## Stress-strain



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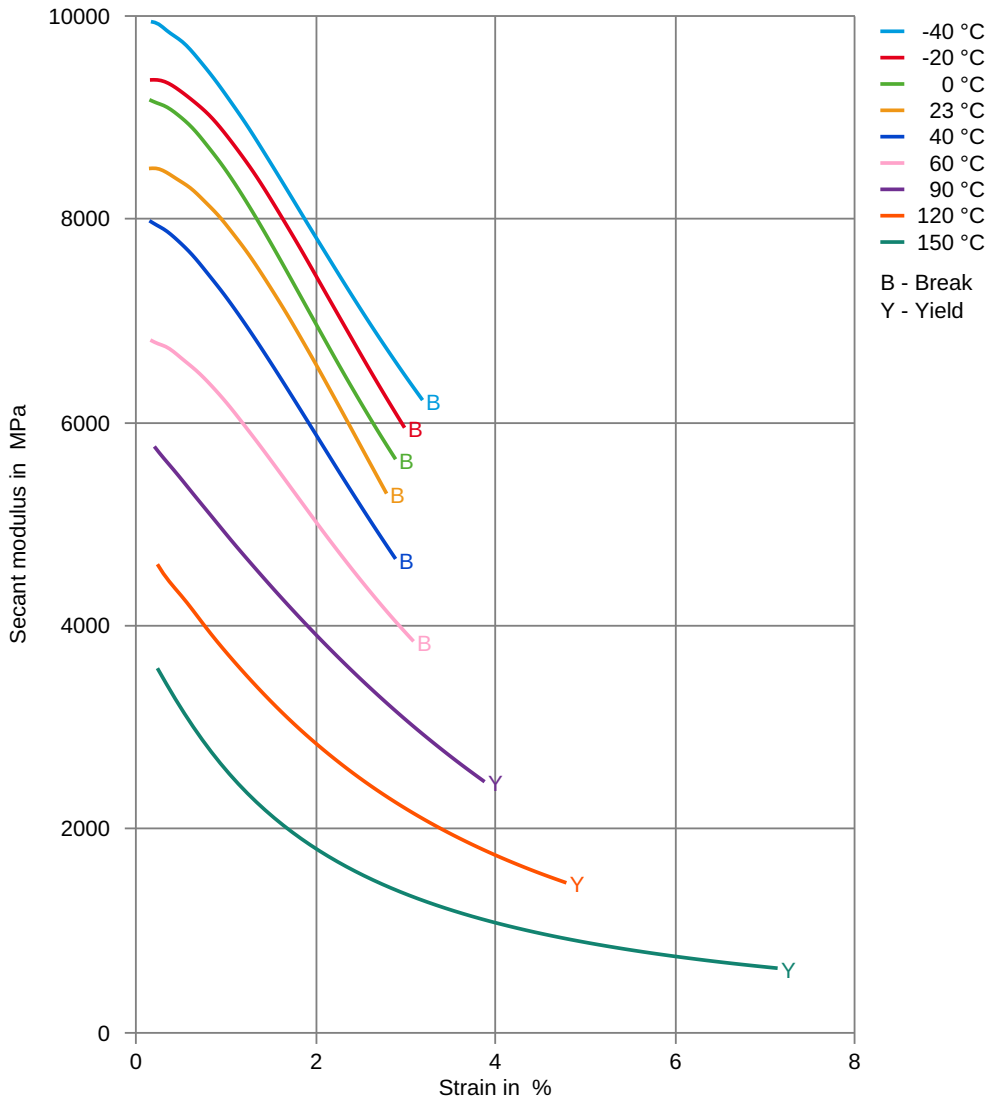
## Secant modulus-strain



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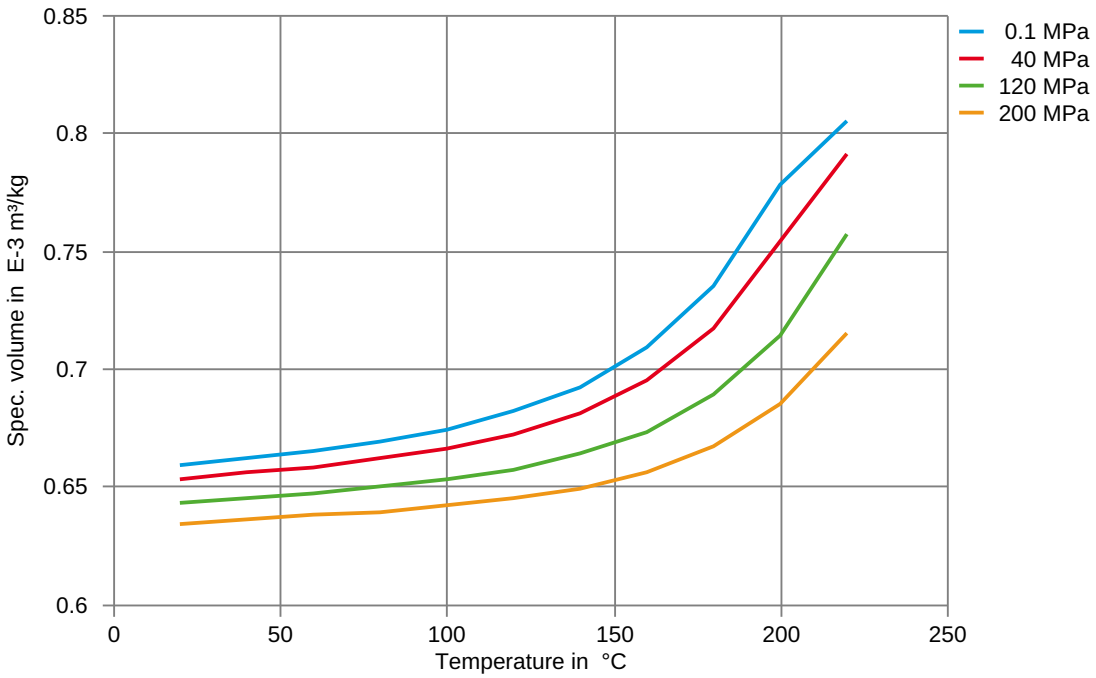
## Specific volume-temperature (pvT)



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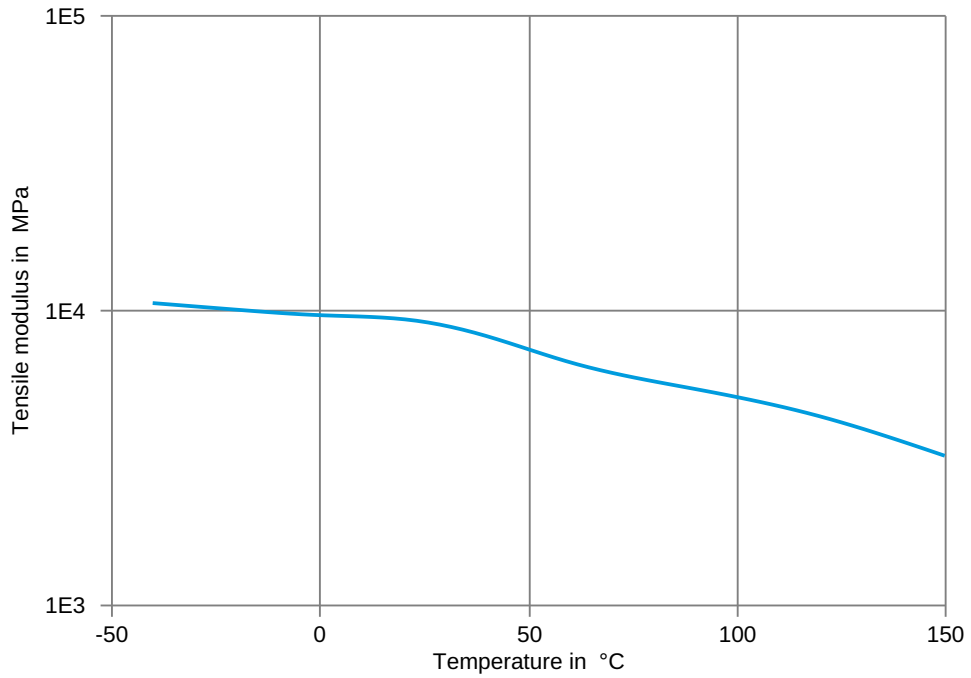
## Tensile modulus-temperature



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