

CAMPUS® Datasheet



Delrin® 100 NC010 - POM DuPont Engineering Polymers

Product Texts

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 with its excellent combination of toughness and strength.

Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate, MVR	1.9	cm ³ /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Molding shrinkage, parallel	2.2	%	ISO 294-4, 2577
Molding shrinkage, normal	1.9	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile modulus	2900	MPa	ISO 527-1/-2
Yield stress	71	MPa	ISO 527-1/-2
Yield strain	26	%	ISO 527-1/-2
Nominal strain at break	45	%	ISO 527-1/-2
Tensile creep modulus, 1h	2900	MPa	ISO 899-1
Tensile creep modulus, 1000h	1600	MPa	ISO 899-1
Charpy impact strength, +23°C	N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	425	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	15	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	13	kJ/m ²	ISO 179/1eA
Abrasion resistance	4	mm ³	ISO 4649
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	178	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.80 MPa	95	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	160	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	160	°C	ISO 306
Coeff. of linear therm. expansion, parallel	110	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	110	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested (1.5)	1.5	mm	IEC 60695-11-10
Yellow Card available	Yes	-	-
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested (h)	0.8	mm	IEC 60695-11-10
Yellow Card available	Yes	-	-
Burning rate, thickness 1 mm	40	mm/min	ISO 3795 (FMVSS 302)
FMVSS	B	-	ISO 3795 (FMVSS 302)
Electrical properties	Value	Unit	Test Standard
Relative permittivity, 100Hz	3.9	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.8	-	IEC 62631-2-1
Dissipation factor, 100Hz	10	E-4	IEC 62631-2-1

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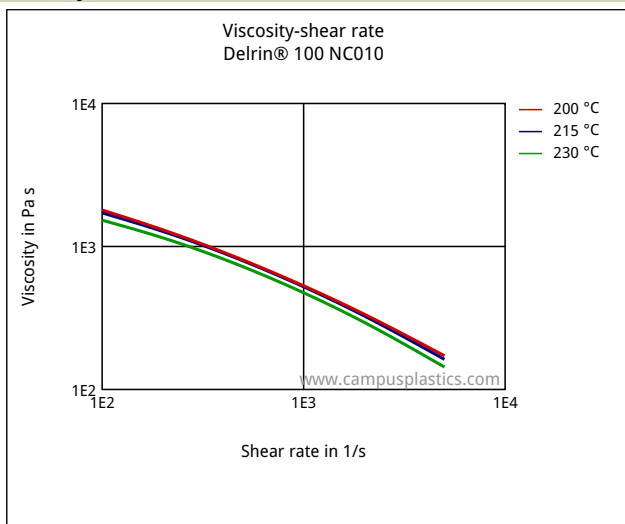
Dissipation factor, 1MHz	55	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm*m	IEC 62631-3-1
Surface resistivity	3E13	Ohm	IEC 62631-3-2
Electric strength	41	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112

Other properties	Value	Unit	Test Standard
Water absorption	0.9	%	Sim. to ISO 62
Humidity absorption	0.2	%	Sim. to ISO 62
Density	1420	kg/m ³	ISO 1183

Rheological calculation properties	Value	Unit	Test Standard
Density of melt	1190	kg/m ³	-
Spec. heat capacity melt	3000	J/(kg K)	-
Eff. thermal diffusivity	1E-7	m ² /s	-

Diagrams

Viscosity-shear rate

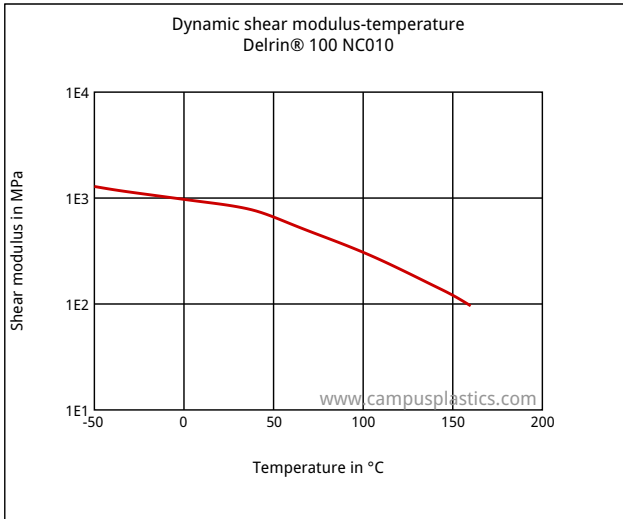


Shearstress-shear rate

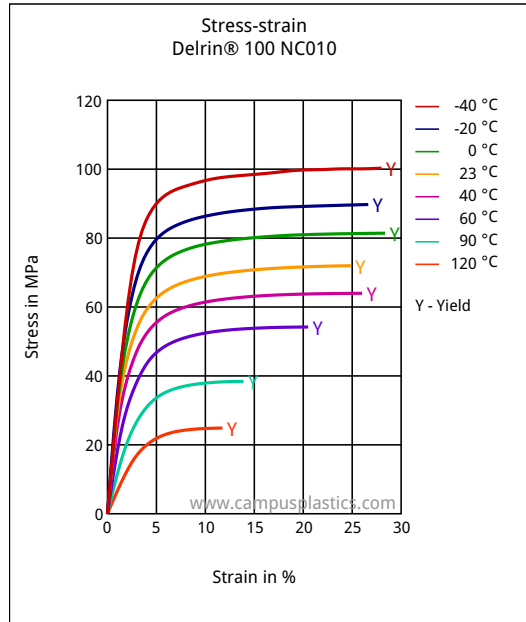


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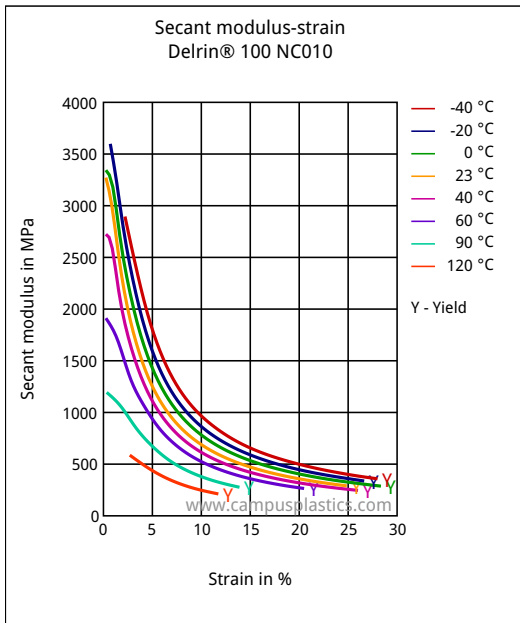
Dynamic shear modulus-temperature



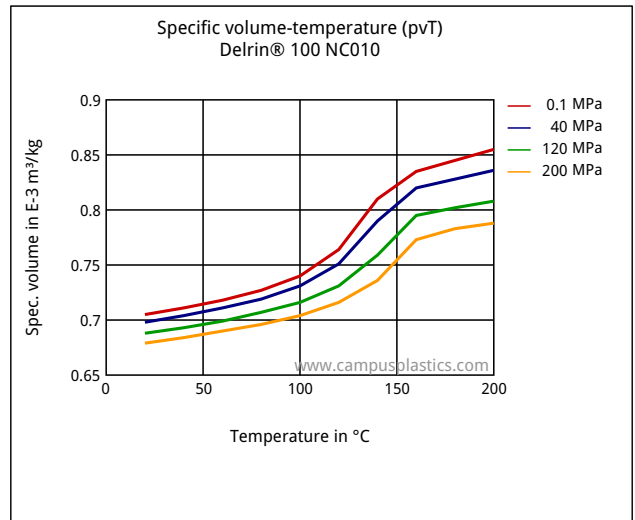
Stress-strain



Secant modulus-strain

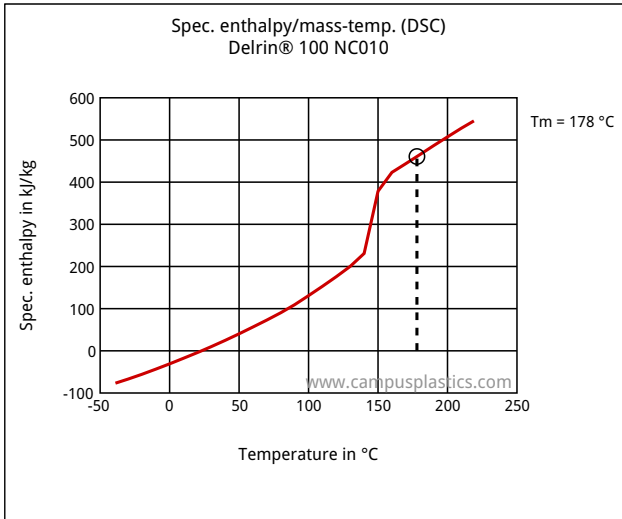


Specific volume-temperature (pvT)

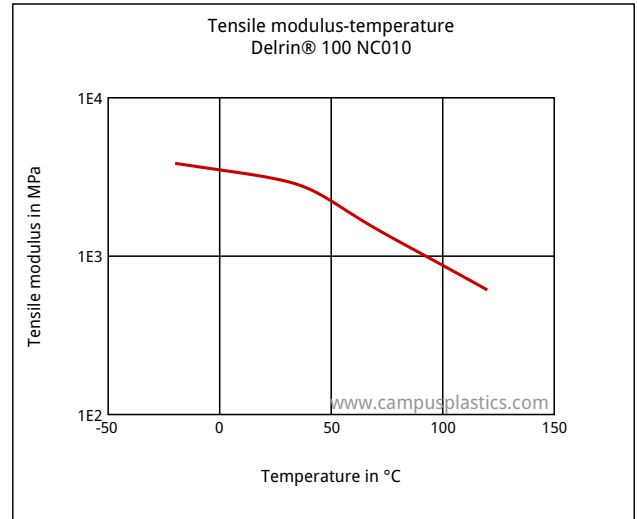


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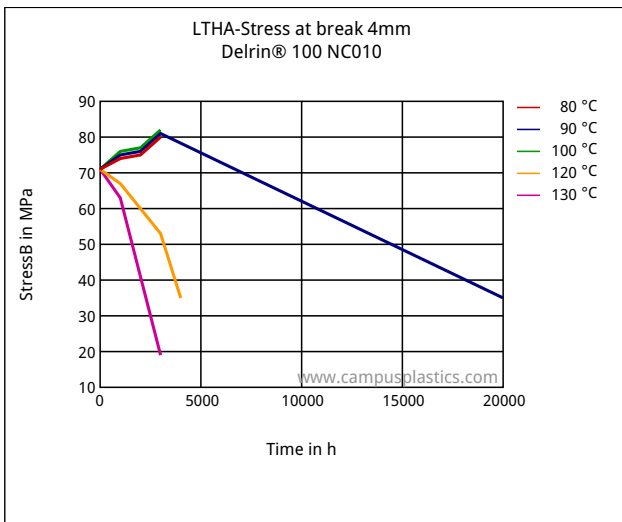
Spec. enthalpy/mass-temp. (DSC)



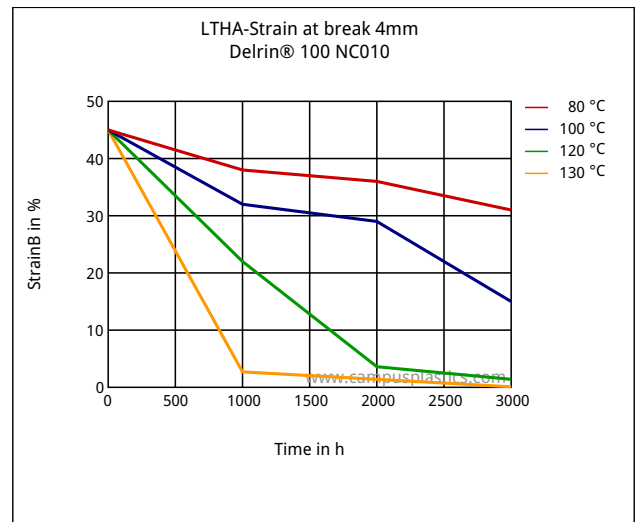
Tensile modulus-temperature



LTHA-Stress at break 4mm



LTHA-Strain at break 4mm



Characteristics

Processing

Injection Molding, Profile Extrusion, Sheet Extrusion, Other Extrusion

Delivery form

Pellets

Additives

Release agent

Regional Availability

North America, Europe, Asia Pacific, South and Central America

Other text 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.

Chemical Media Resistance

Acids

- ☺ Acetic Acid (5% by mass) (23°C)
- ☹ Citric Acid solution (10% by mass) (23°C)
- ☹ Lactic Acid (10% by mass) (23°C)
- ☹ Hydrochloric Acid (36% by mass) (23°C)
- ☹ Nitric Acid (40% by mass) (23°C)
- ☹ Sulfuric Acid (38% by mass) (23°C)
- ☹ Sulfuric Acid (5% by mass) (23°C)
- ☹ Chromic Acid solution (40% by mass) (23°C)

Bases

- ☹ Sodium Hydroxide solution (35% by mass) (23°C)
- ☹ Sodium Hydroxide solution (1% by mass) (23°C)
- ☹ Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

- ☺ Isopropyl alcohol (23°C)
- ☺ Methanol (23°C)
- ☺ Ethanol (23°C)

Hydrocarbons

- ☺ n-Hexane (23°C)
- ☺ Toluene (23°C)
- ☺ iso-Octane (23°C)

Ketones

- ☺ Acetone (23°C)

Ethers

- ☺ Diethyl ether (23°C)

Mineral oils





- ☺ SAE 10W40 multigrade motor oil (23°C)
- ☹ SAE 10W40 multigrade motor oil (130°C)
- ☹ SAE 80/90 hypoid-gear oil (130°C)
- ☺ Insulating Oil (23°C)
- ☹ Motor oil OS206 304 Ref.Eng.Oil, ISP (135°C)
- ☹ Automatic hypoid-gear oil Shell Donax TX (135°C)
- ☹ Hydraulic oil Pentosin CHF 202 (125°C)

Standard Fuels






- ☺ ISO 1817 Liquid 1 (60°C)
- ☺ ISO 1817 Liquid 2 (60°C)
- ☺ ISO 1817 Liquid 3 (60°C)
- ☺ ISO 1817 Liquid 4 (60°C)
- ☺ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ☺ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)

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
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-  Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
-  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)
-  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

-  Ethyl Acetate (23°C)
-  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)
-  Deionized water (90°C)
-  Phenol solution (5% by mass) (23°C)

All data provided according to ISO 10350 for single points and ISO 11403 for multipoints.

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

Test temperatures are 23°C unless otherwise stated.

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