

Crastin® LW9330 NC010

THERMOPLASTIC POLYESTER RESIN

Common features of Crastin® thermoplastic polyester resin include mechanical and physical properties such as stiffness and toughness, heat resistance, friction and wear resistance, excellent surface finishes and good colourability. Crastin® thermoplastic polyester resin has excellent electrical insulation characteristics and high arc-resistant grades are available. Many flame retardant grades have UL recognition (class V-0). Crastin® thermoplastic polyester resin typically has high chemical and heat ageing resistance.

The good melt stability of Crastin® thermoplastic polyester resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Crastin® thermoplastic polyester resin typically is used in demanding applications in the electronics, electrical, automotive, mechanical engineering, chemical, domestic appliances and sporting goods industry.

Crastin® LW9330 NC010 is a 30% glass fiber reinforced polybutylene terephthalate blend for injection moulding. It has improved surface aesthetics, excellent dimensional stability and low warpage characteristics.

Product information

Resin Identification	PBT+SAN-IGF30	ISO 1043
Part Marking Code	>PBT+SAN-IGF30<	ISO 11469

Rheological properties

Melt volume-flow rate	10 cm ³ /10min	ISO 1133
Temperature	250 °C	
Load	5 kg	
Melt mass-flow rate	13 g/10min	ISO 1133
Melt mass-flow rate, Temperature	250 °C	
Melt mass-flow rate, Load	5 kg	
Moulding shrinkage, parallel	0.3 %	ISO 294-4, 2577
Moulding shrinkage, normal	0.6 %	ISO 294-4, 2577
Postmoulding shrinkage, normal, 48h at 80 °C	0.25 %	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80 °C	0.15 %	ISO 294-4

Typical mechanical properties

Tensile modulus	9800 MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	135 MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.3 %	ISO 527-1/-2
Flexural modulus	8400 MPa	ISO 178
Flexural strength	200 MPa	ISO 178
Charpy impact strength, 23 °C	55 kJ/m ²	ISO 179/1eU
Charpy impact strength, -40 °C	50 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23 °C	9 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30 °C	9 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -40 °C	9 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23 °C	7 kJ/m ²	ISO 180/1A
Izod notched impact strength, -40 °C	7.0 kJ/m ²	ISO 180/1A
Izod impact strength, 23 °C	45 kJ/m ²	ISO 180/1U
Izod impact strength, -40 °C	45 kJ/m ²	ISO 180/1U

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Poisson's ratio 0.34

Thermal properties

Melting temperature, 10°C/min	225 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	110 °C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	185 °C	ISO 75-1/-2
Ball pressure test	195 °C	IEC 60695-10-2
Coefficient of linear thermal expansion (CLTE), parallel	25 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	125 E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.28 W/(m K)	ISO 22007-2
Specific heat capacity of melt	1790 J/(kg K)	ISO 22007-4
RTI, electrical, 0.75mm	130 °C	UL 746B
RTI, electrical, 1.5mm	130 °C	UL 746B
RTI, electrical, 3.0mm	130 °C	UL 746B
RTI, impact, 0.75mm	125 °C	UL 746B
RTI, impact, 1.5mm	125 °C	UL 746B
RTI, impact, 3.0mm	130 °C	UL 746B
RTI, strength, 0.75mm	130 °C	UL 746B
RTI, strength, 1.5mm	130 °C	UL 746B
RTI, strength, 3.0mm	130 °C	UL 746B
TGA curve	available	ISO 11359-1/-2

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
Glow Wire Flammability Index, 0.75mm	700 °C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	700 °C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	775 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	725 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	725 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	800 °C	IEC 60695-2-13
Glow Wire Temperature, No Flame, 0.75mm	700 °C	IEC 60335-1
Glow Wire Temperature, No Flame, 1mm	700 °C	IEC 60335-1
Glow Wire Temperature, No Flame, 1.5mm	700 °C	IEC 60335-1
Glow Wire Temperature, No Flame, 2mm	700 °C	IEC 60335-1
Glow Wire Temperature, No Flame, 3mm	700 °C	IEC 60335-1
FMVSS Class	B	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	28 mm/min	ISO 3795 (FMVSS 302)

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Electrical properties

Surface resistivity	>1E15 Ohm	IEC 62631-3-2
Comparative tracking index	550	IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.25 %	Sim. to ISO 62
Water absorption, 2mm	1 %	Sim. to ISO 62
Density	1420 kg/m ³	ISO 1183
Density of melt	1270 kg/m ³	

Injection

Drying Recommended	yes
Drying Temperature	120 °C
Drying Time, Dehumidified Dryer	2 - 4 h
Processing Moisture Content	≤0.04 %
Melt Temperature Optimum	260 °C
Min. melt temperature	250 °C
Max. melt temperature	270 °C
Mold Temperature Optimum	100 °C
Min. mould temperature	60 °C
Max. mould temperature	130 °C
Hold pressure range	≥60 MPa
Hold pressure time	3 s/mm
Back pressure	As low as possible MPa
Ejection temperature	185 °C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent
Special characteristics	Low Warpage

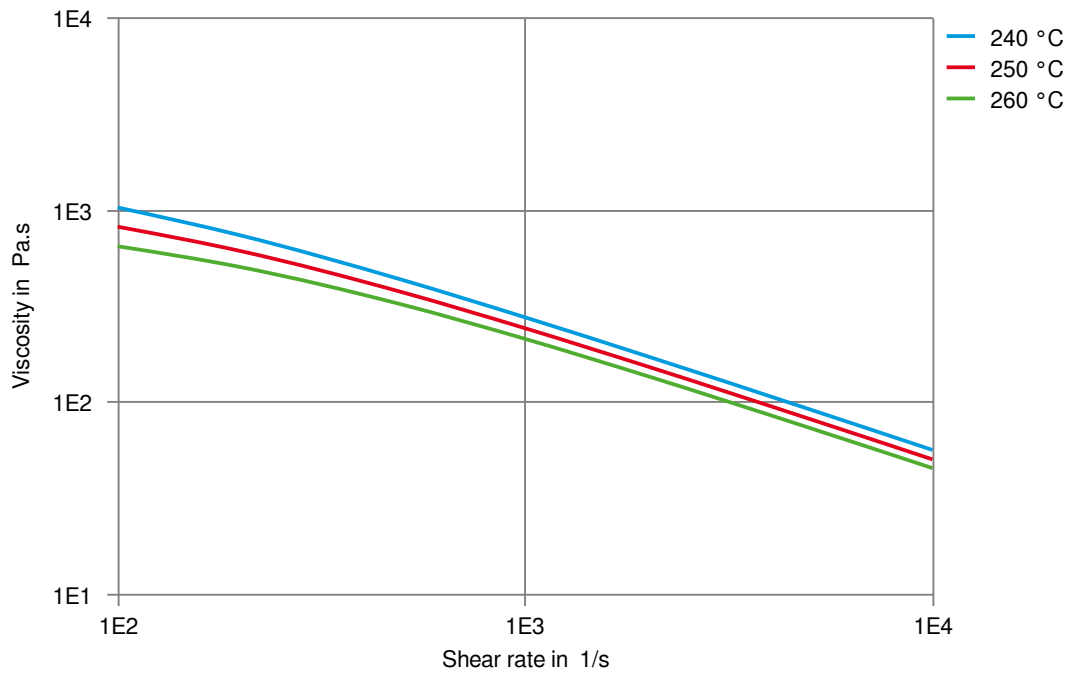
Automotive

OEM	STANDARD
Bosch	N28 BN08-GF018

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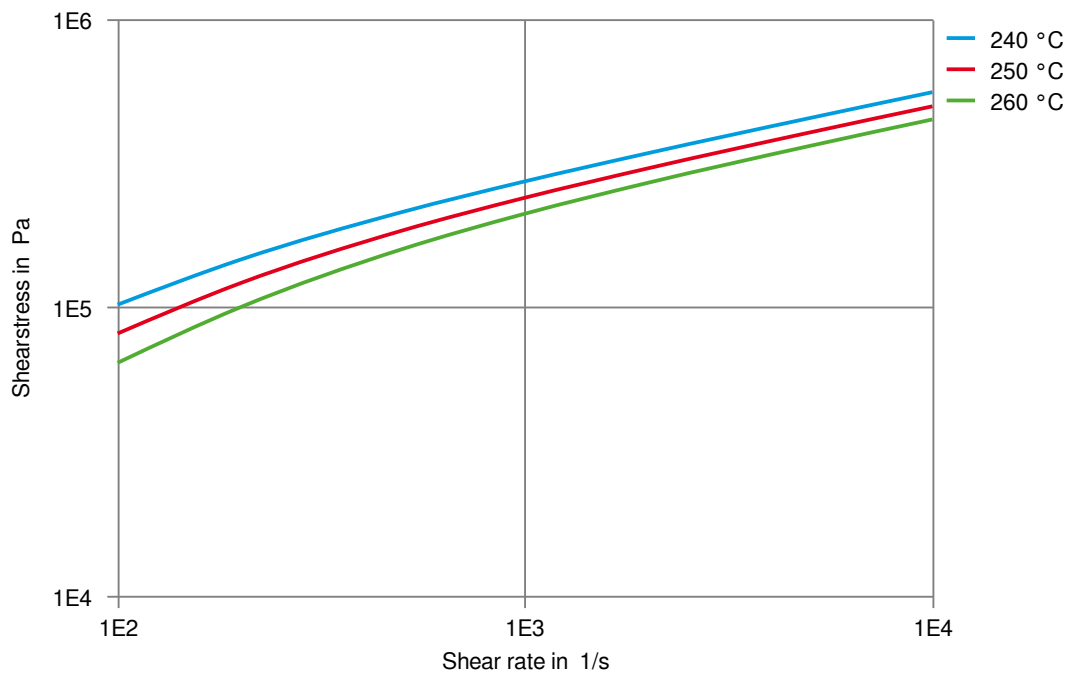
Viscosity-shear rate



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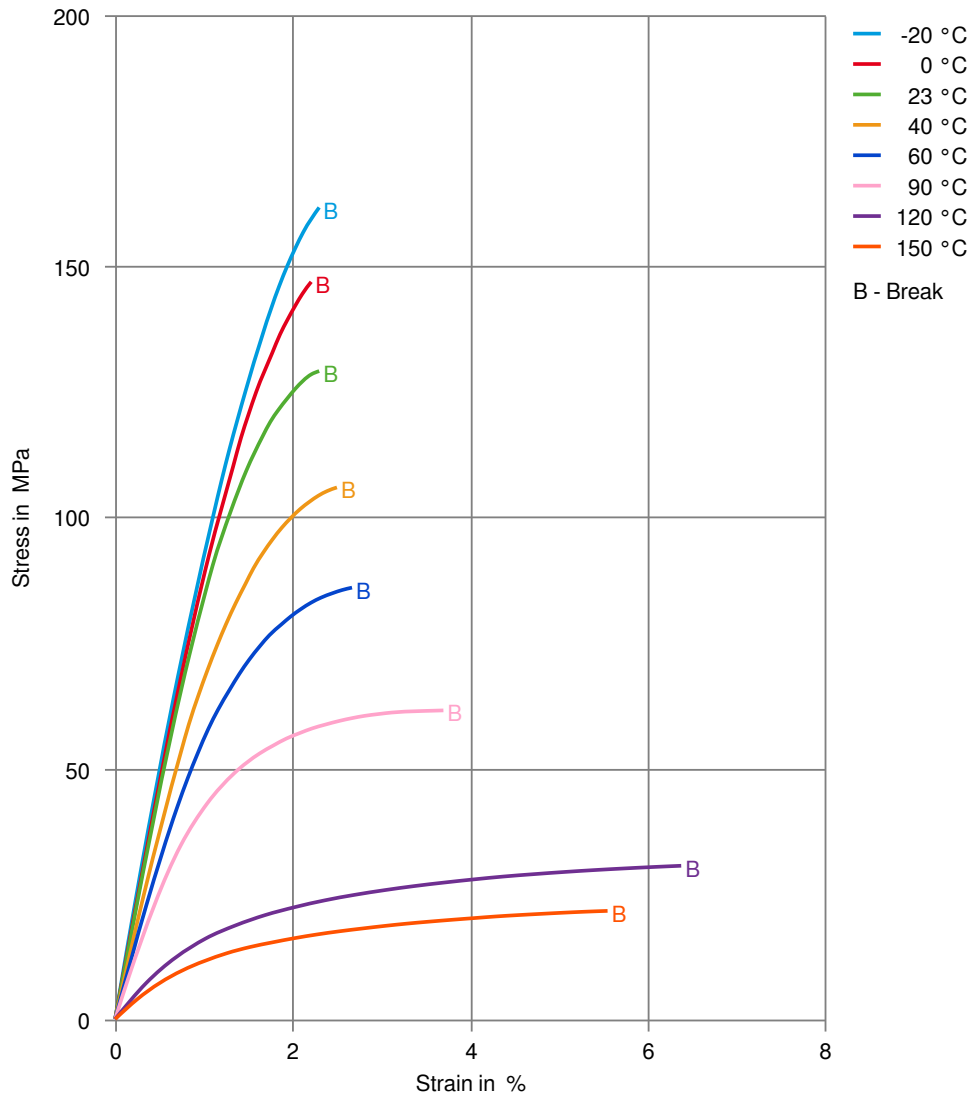
Shearstress-shear rate



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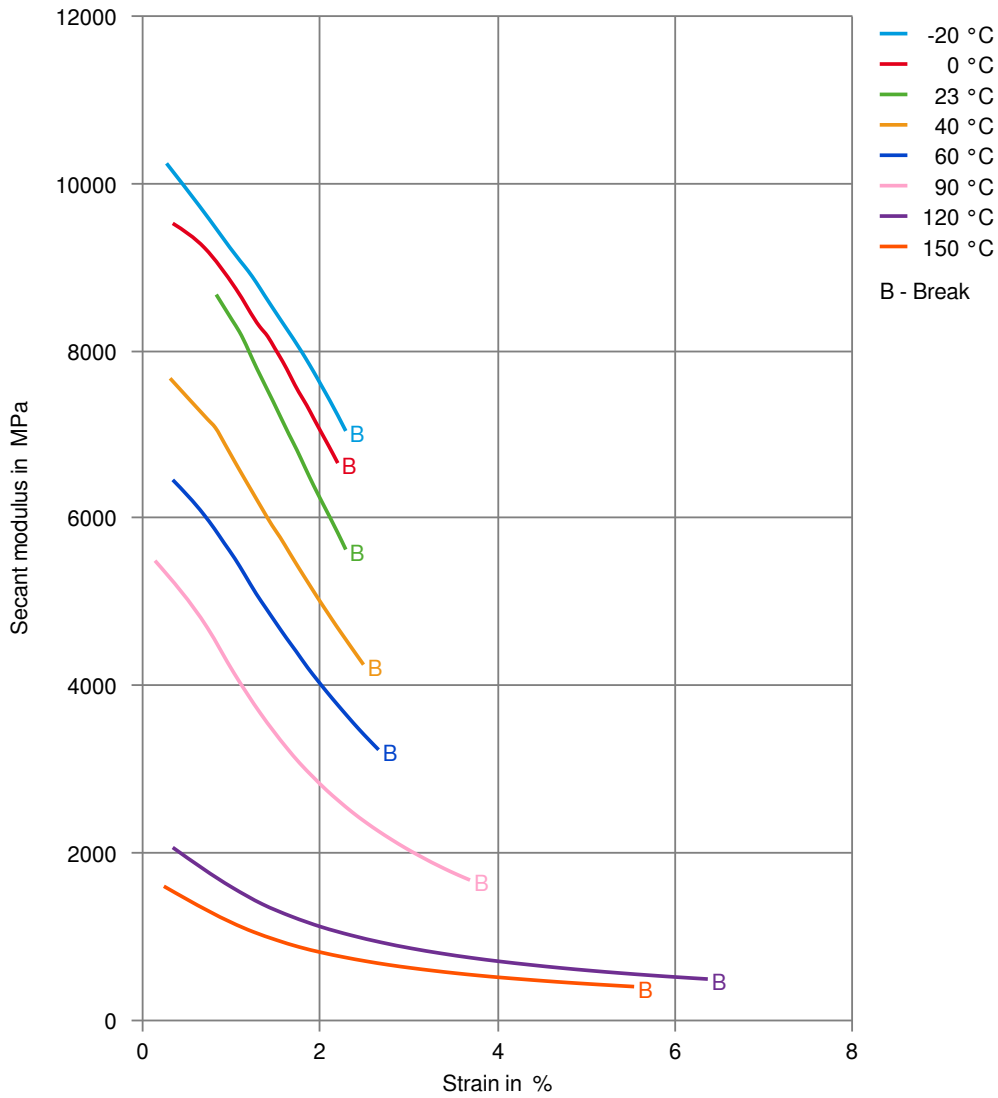
Stress-strain



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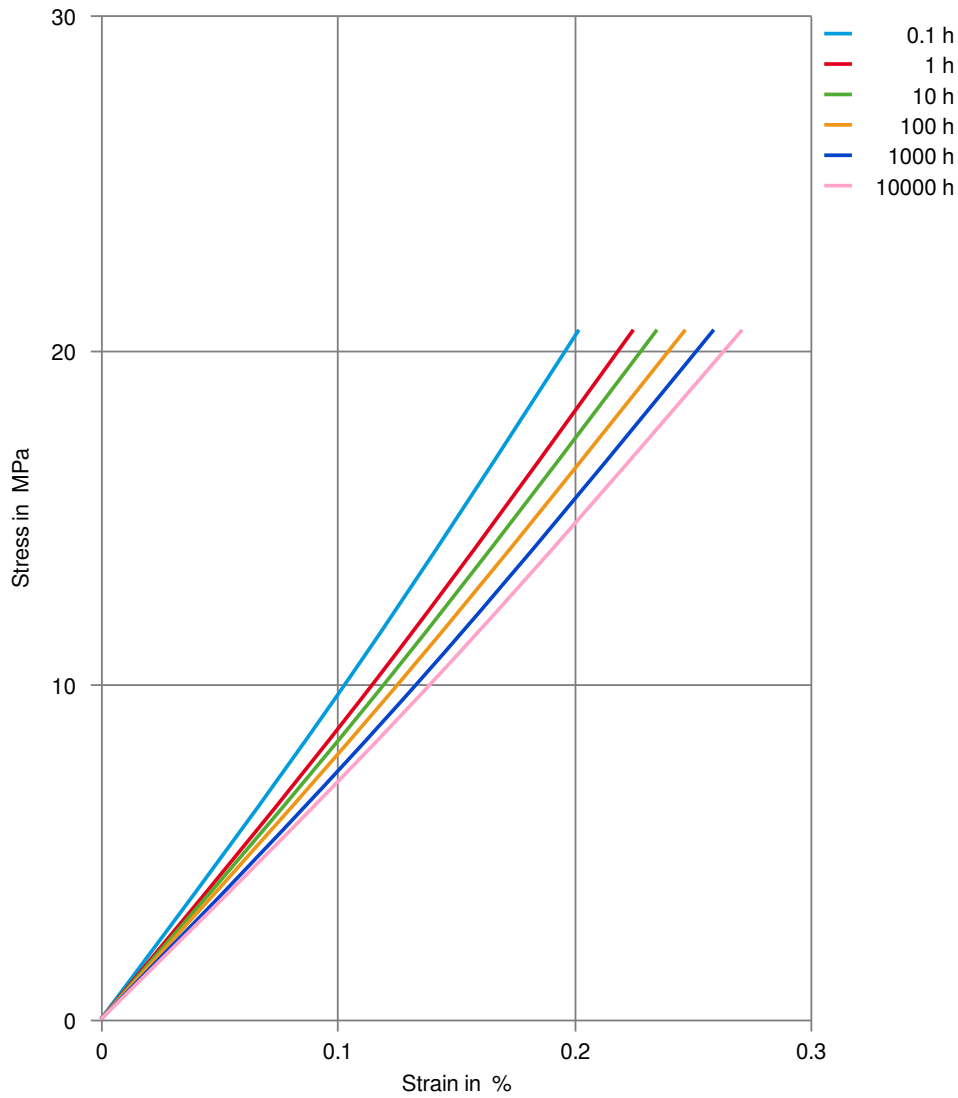
Secant modulus-strain



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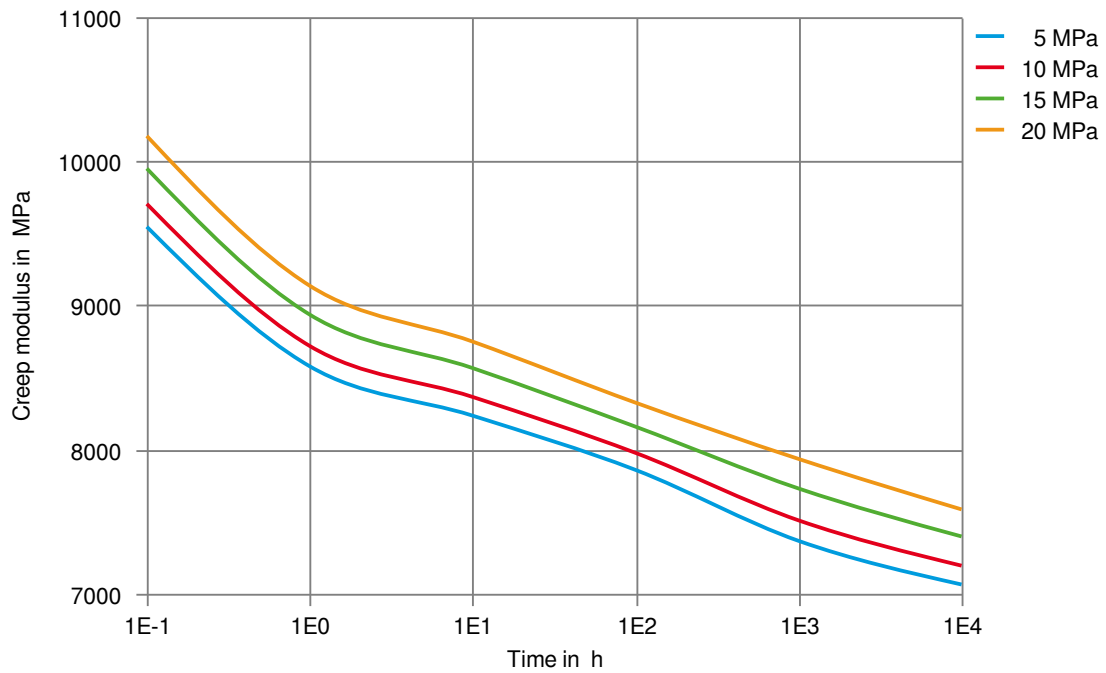
Stress-strain (isochronous) 23°C



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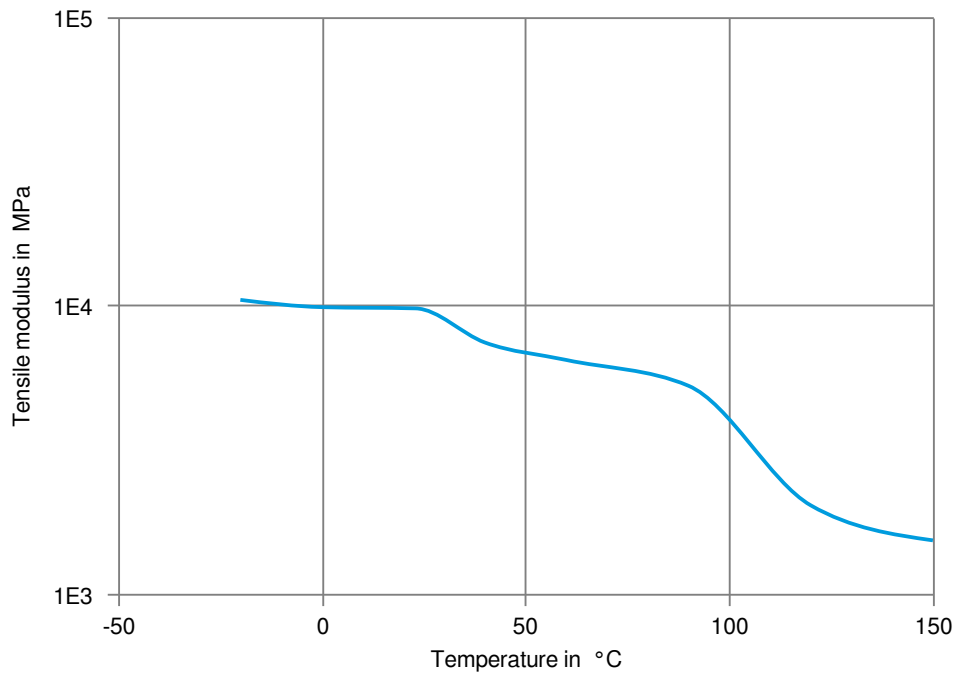
Creep modulus-time 23°C



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Tensile modulus-temperature



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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

Standard Fuels

- ✗ ISO 1817 Liquid 1 - E5, 60°C
- ✗ ISO 1817 Liquid 2 - M15E4, 60°C
- ✗ ISO 1817 Liquid 3 - M3E7, 60°C
- ✗ ISO 1817 Liquid 4 - M15, 60°C
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✓ 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

Salt solutions

- ✓ Sodium Chloride solution (10% by mass), 23°C
- ✓ Sodium Hypochlorite solution (10% by mass), 23°C

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- ✓ 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
- ✗ 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
- ✗ Water, 90 °C
- ✓ Phenol solution (5% by mass), 23 °C

Symbols used:

- ✓ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).
- ✗ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).