Celanese
The chemistry inside innovation™

Crastin® SK603 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® SK603 NC010 is a 20% glass fiber reinforced, lubricated polybutylene terephthalate resin for injection moulding.

Product information

Resin Identification	PBT-GF20	ISO 1043
Part Marking Code	>PBT-GF20<	ISO 11469

Rheological properties

Melt volume-flow rate	14	cm^3/10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Melt mass-flow rate	18	g/10min	ISO 1133
Melt mass-flow rate, Temperature	250	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.1	%	ISO 294-4, 2577
Postmoulding shrinkage, normal, 48h at 80°C	0.2	%	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80°C	0.15	%	ISO 294-4

Typical mechanical properties

Tensile modulus	7000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	120	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.2	%	ISO 527-1/-2
Flexural modulus	6500	MPa	ISO 178
Flexural strength	180	MPa	ISO 178
Tensile creep modulus, 1h	7200	MPa	ISO 899-1
Tensile creep modulus, 1000h	5600	MPa	ISO 899-1
Charpy impact strength, 23°C	60	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	55	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	8	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	9	kJ/m^2	ISO 180/1A
Izod notched impact strength, -30°C	8.0	kJ/m^2	ISO 180/1A
Izod impact strength, 23°C	60	kJ/m^2	ISO 180/1U
Izod impact strength, -30°C	60	kJ/m^2	ISO 180/1U

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Hardness, Rockwell, R-scale	122		ISO 2039-2
Poisson's ratio	0.35		

Tribological properties

Coefficient of sliding friction, 1h against itself	0.08		ASTM 1894

Thermal properties

Melting temperature, 10°C/min	224	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	205	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	220	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	210	°C	ISO 306
Ball pressure test	210	°C	IEC 60695-10-2
Coefficient of linear thermal expansion (CLTE), parallel	40	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	100	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.25	W/(m K)	ISO 22007-2
Specific heat capacity of melt	1860	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, electrical, 6mm	130	°C	UL 746B
RTI, impact, 0.75mm	130	°C	UL 746B
RTI, impact, 1.5mm	130	°C	UL 746B
RTI, impact, 3.0mm	130	°C	UL 746B
RTI, impact, 6mm	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
RTI, strength, 6mm	130	°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
Oxygen index	19	%	ISO 4589-1/-2
Glow Wire Flammability Index, 3.0mm	750	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.0mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 2.0mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	750	°C	IEC 60695-2-13
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

Relative permittivity, 100Hz	4		IEC 62631-2-1
Relative permittivity, 1MHz	3.6		IEC 62631-2-1
Dissipation factor, 100Hz	11.9	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	190	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	1E15	Ohm	IEC 62631-3-2
Electric strength	29	kV/mm	IEC 60243-1
Comparative tracking index	350		IEC 60112
Electric Strength, Short Time, 2mm	17	kV/mm	IEC 60243-1

Physical/Other properties

Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Water absorption, 2mm	0.4	%	Sim. to ISO 62
Density	1450	kg/m³	ISO 1183
Density of melt	1260	kg/m³	

VDA Properties

Odour	3	class	VDA 270
Fogging, G-value (condensate)	0.1[DS]	mg	ISO 6452

[DS]: Derived from similar grade

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.04	%
Melt Temperature Optimum	250	°C
Min. melt temperature	240	°C
Max. melt temperature	260	°C
Mold Temperature Optimum	80	°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	181	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent

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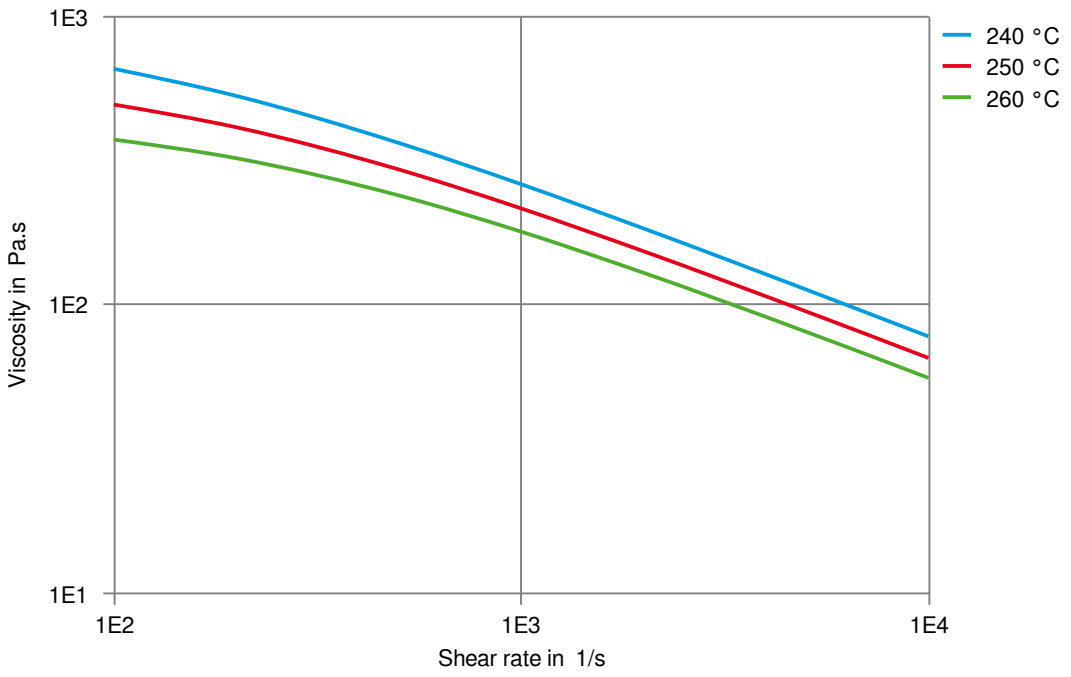
Automotive

OEM	STANDARD
BMW	GS93016-PBT-GF20
Bosch	N28 BN07-GF012

Viscosity-shear rate



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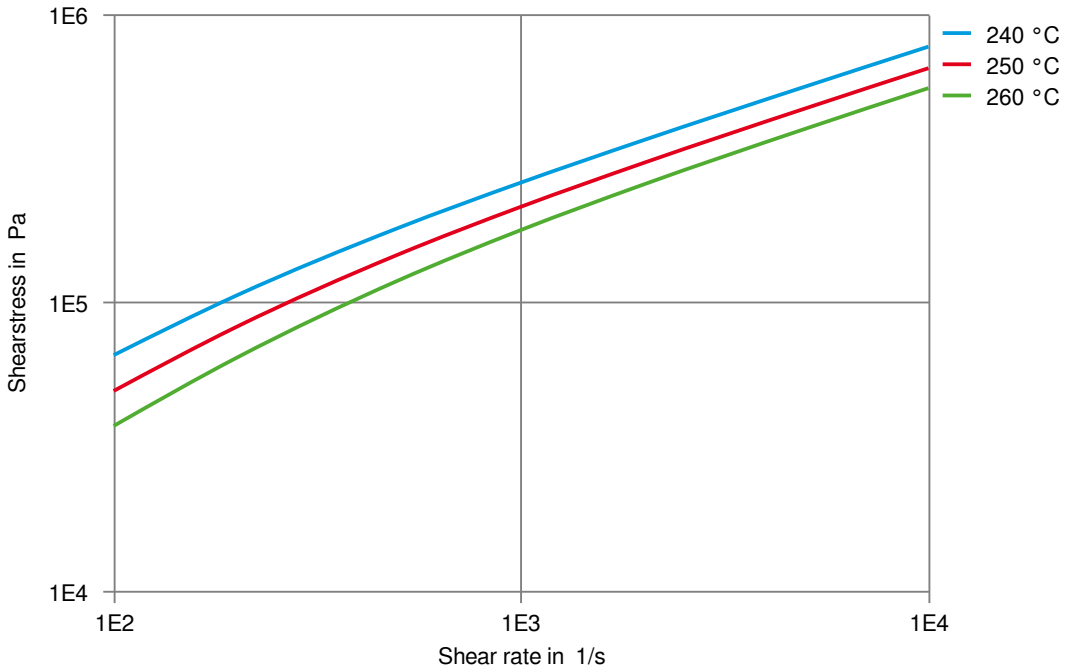
Shearstress-shear rate



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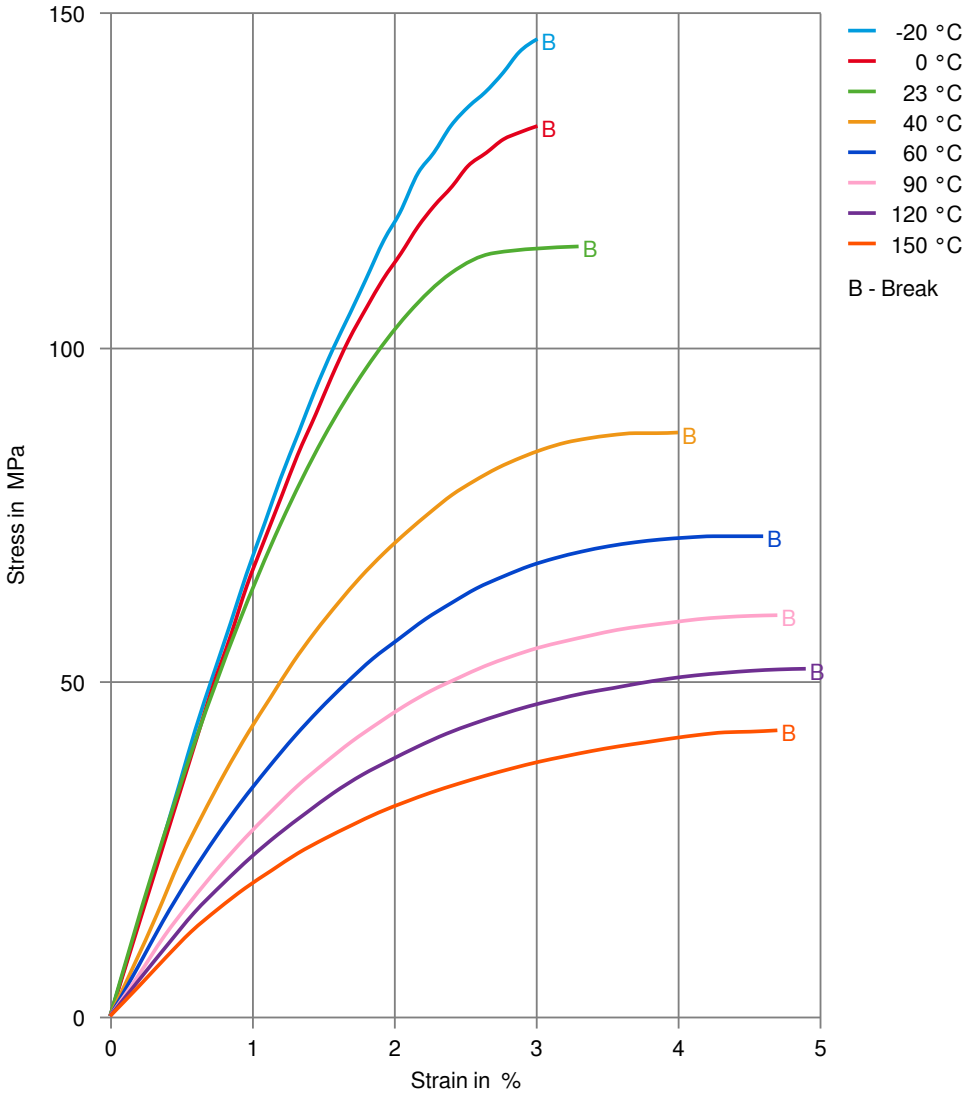
Stress-strain



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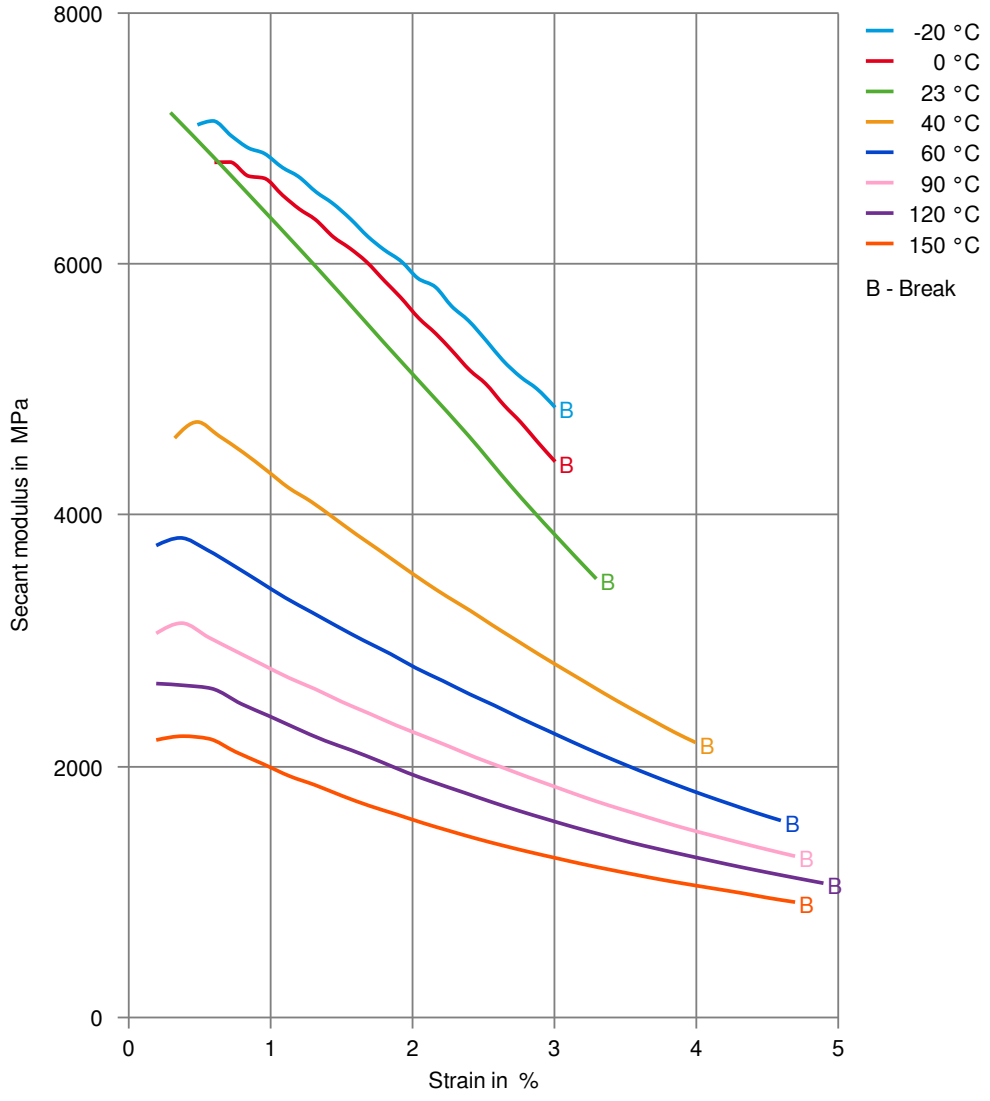
Secant modulus-strain



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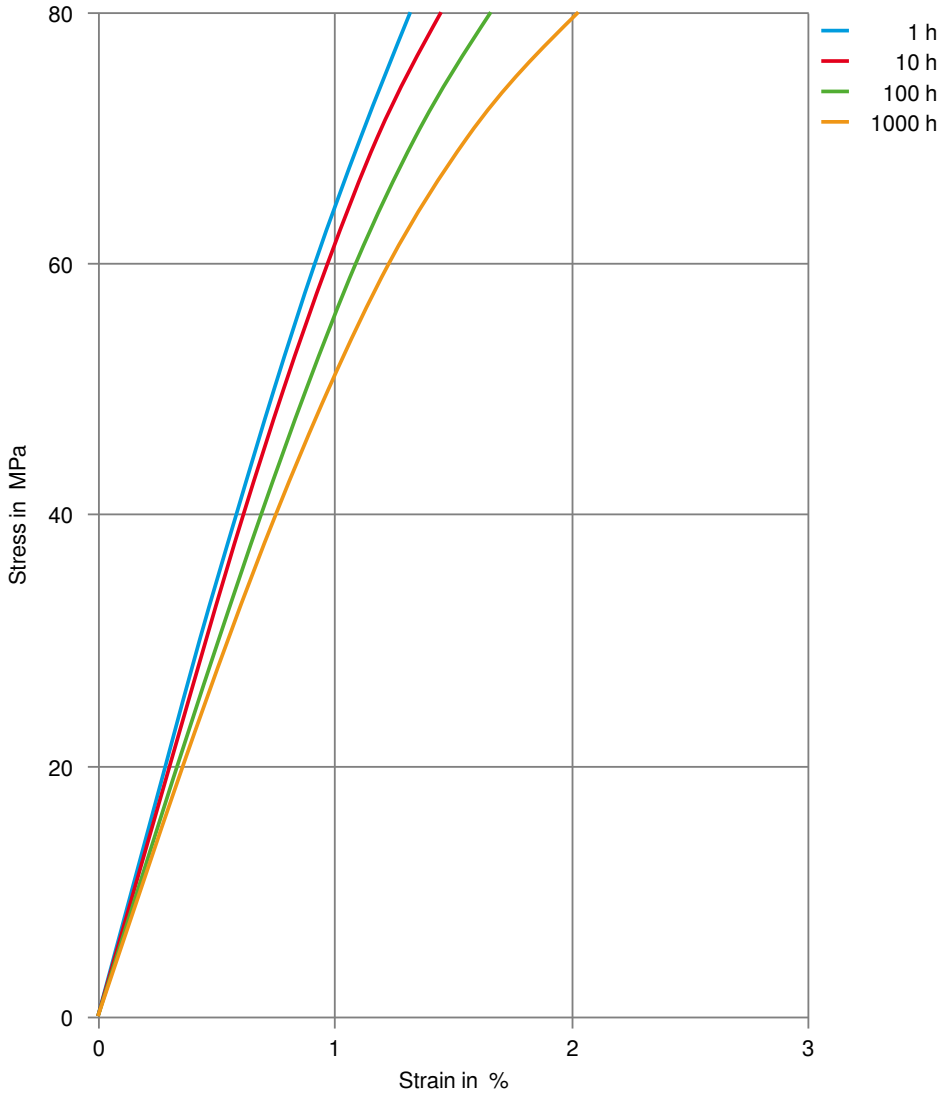
THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 23 °C



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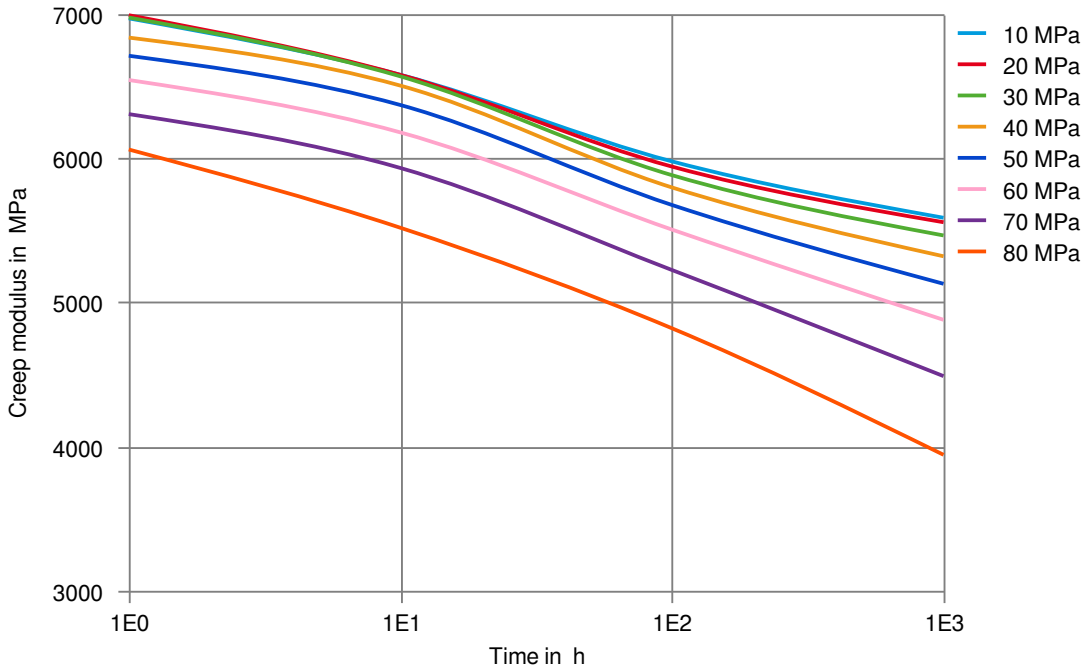
THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 23 °C



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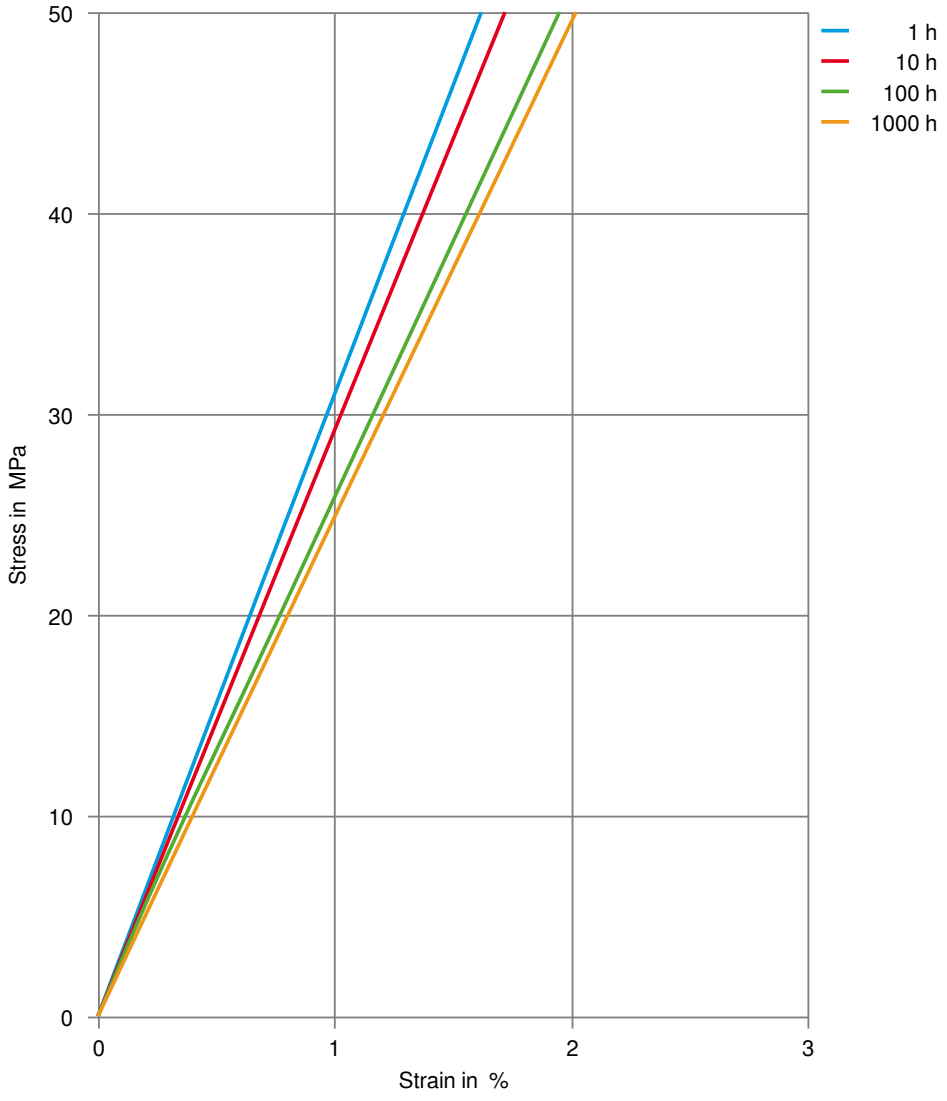
Stress-strain (isochronous) 60 °C



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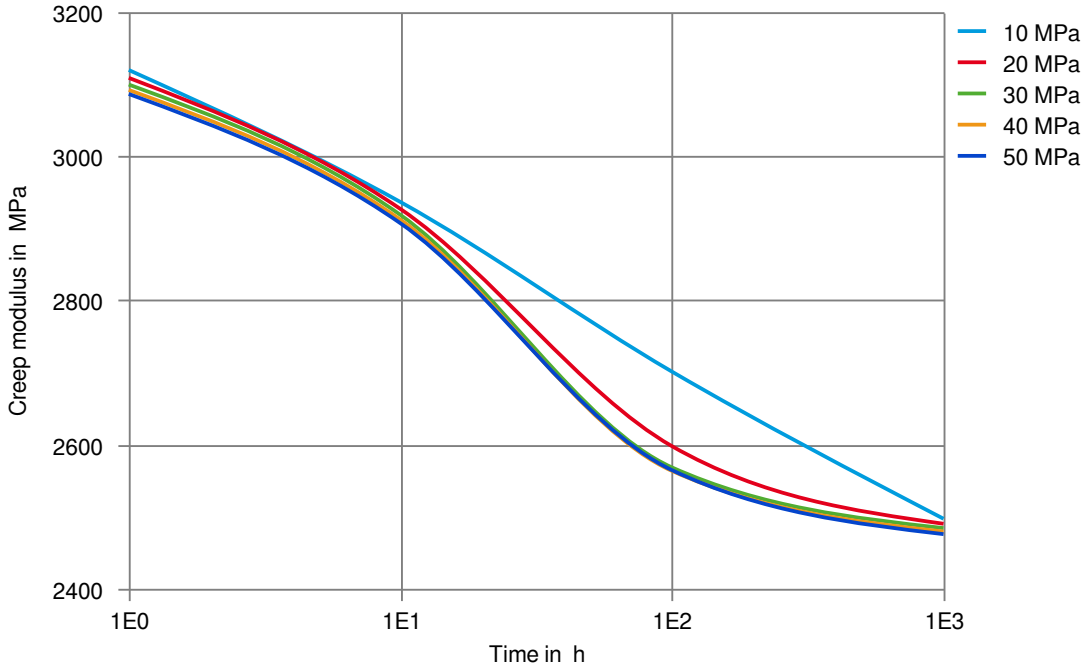
THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 60 °C



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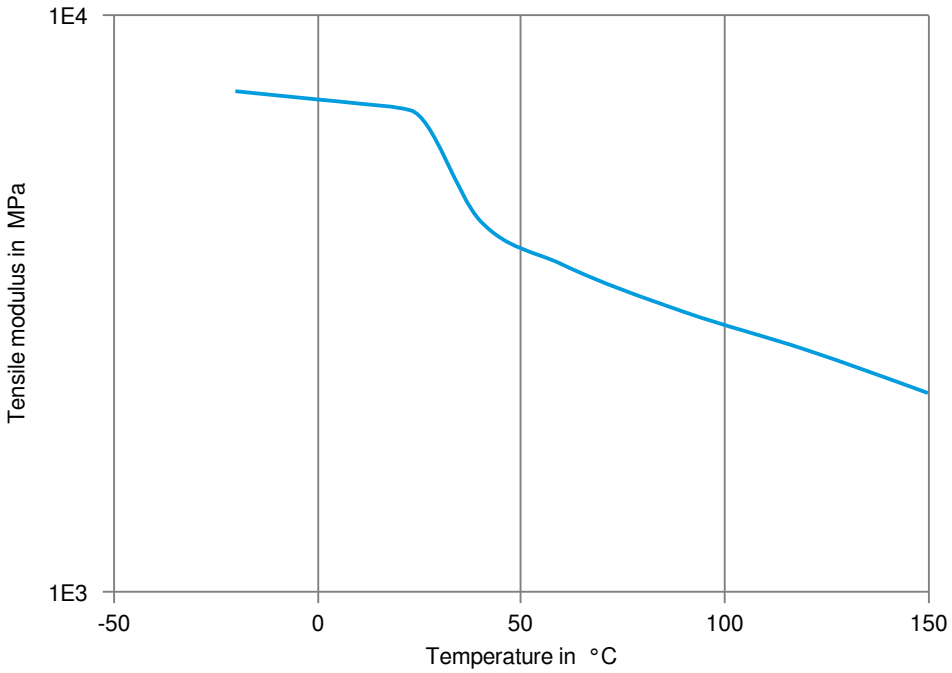
Tensile modulus-temperature



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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).

Revised: 2025-04-17 Source: Celanese Materials Database