Celanese
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Zytel® 73G50HSLA BK416

NYLON RESIN

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® nylon 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 (-31kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

Zytel® 73G50HSLA BK416 is a 50% glass fiber reinforced, heat stabilised, lubricated, polyamide 6 resin for injection moulding. It has an excellent surface appearance and gloss.

Product information

Resin Identification	PA6-GF50	ISO 1043
Part Marking Code	>PA6-GF50<	ISO 11469
ISO designation	ISO 16396-PA6,GF50,M1CGHR,S09-160	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.7 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	16000 / 12000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	230 / 150	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.2 / 4	%	ISO 527-1/-2
Flexural modulus	15000 / 10000	MPa	ISO 178
Flexural strength	400 / 240	MPa	ISO 178
Flexural stress at 3.5%	- / 225	MPa	ISO 178
Tensile creep modulus, 1h	* / 9500	MPa	ISO 899-1
Tensile creep modulus, 1000h	* / 7500	MPa	ISO 899-1
Charpy impact strength, 23°C	100 / 100	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	100 / 90	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	21 / 22	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	19 / 18	kJ/m²	ISO 179/1eA
Poisson's ratio	0.33 / 0.33		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	219 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60 / 15	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	212 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	219 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	215 / *	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	15 / *	E-6/K	ISO 11359-1/-2

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Coefficient of linear thermal expansion (CLTE), normal	100 / *	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.26	W/(m K)	ISO 22007-2
Specific heat capacity of melt	2050	J/(kg K)	ISO 22007-4

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	31	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Surface resistivity	* / 5E12	Ohm	IEC 62631-3-2
Comparative tracking index	380 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.6 / *	%	Sim. to ISO 62
Water absorption, 2mm	4.5 / *	%	Sim. to ISO 62
Density	1580 / -	kg/m³	ISO 1183
Density of melt	1240	kg/m³	

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.2	%
Melt Temperature Optimum	270	°C
Min. melt temperature	260	°C
Max. melt temperature	280	°C
Screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	100	°C
Min. mould temperature	70	°C
Max. mould temperature	120	°C
Hold pressure range	50 - 100	MPa
Hold pressure time	3	s/mm
Ejection temperature	162	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent
Special characteristics	Heat stabilised or stable to heat

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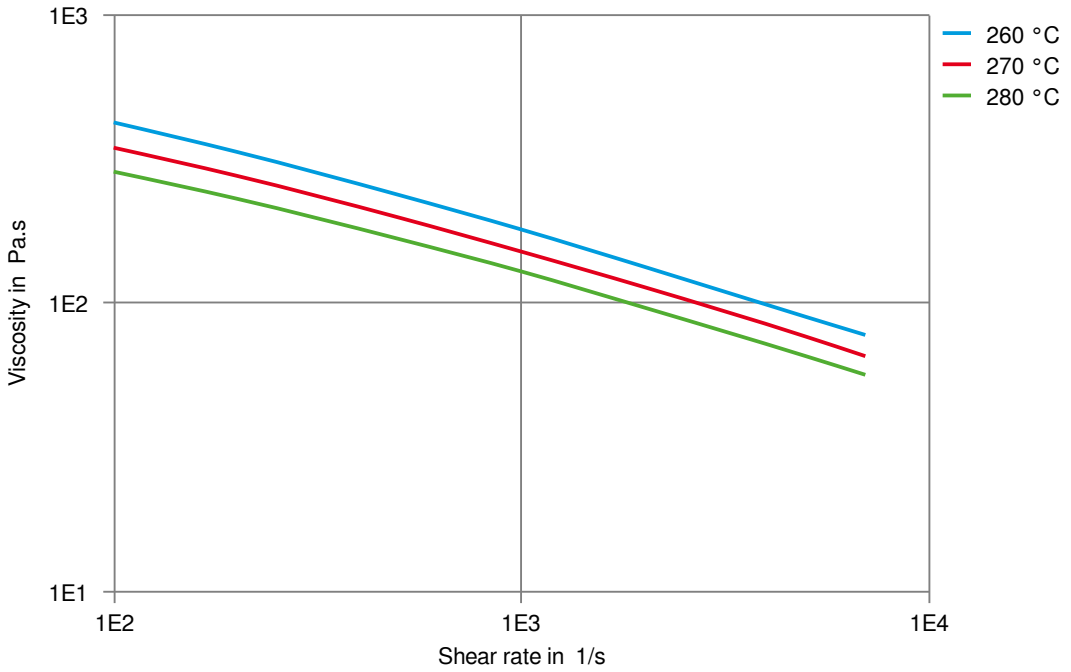
Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
General Motors	GMW3029P-PA6-GF50H	Black
Renault-Nissan	AS25, No Spec, Special Part Approval, See Your CE Account Manager.	
Stellantis	MS.50150 / PA6.GF50.14100F.15I.HS	01994_15_00059, 61/U4/AD1/O2/AB1*/E2/212M-214E/13/C1B
VW Group	TL 524 40-A PA6-GF50	
VW Group	VW 50125 PA6-010	
VW Group	VW 50134 PA6-10-A	

Viscosity-shear rate



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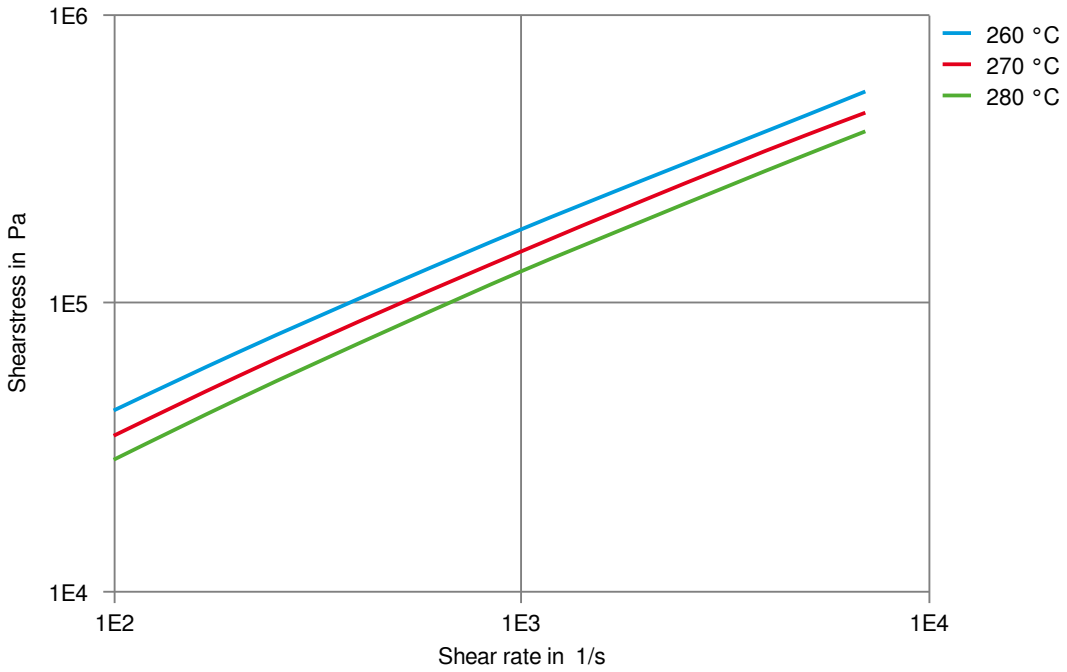
Shearstress-shear rate



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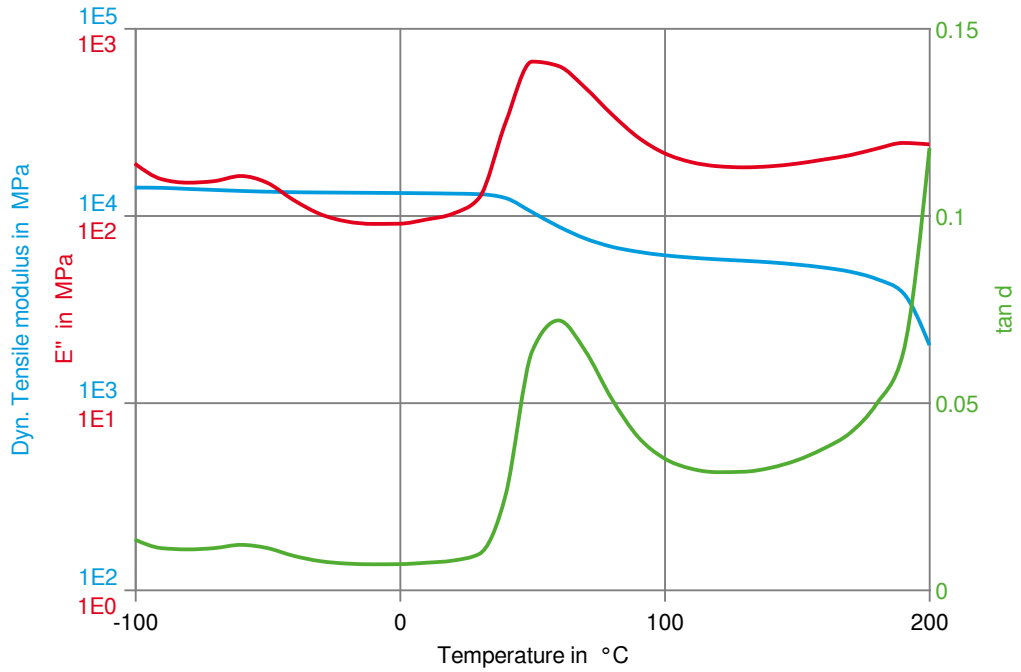
Dynamic Tensile modulus-temperature (dry)



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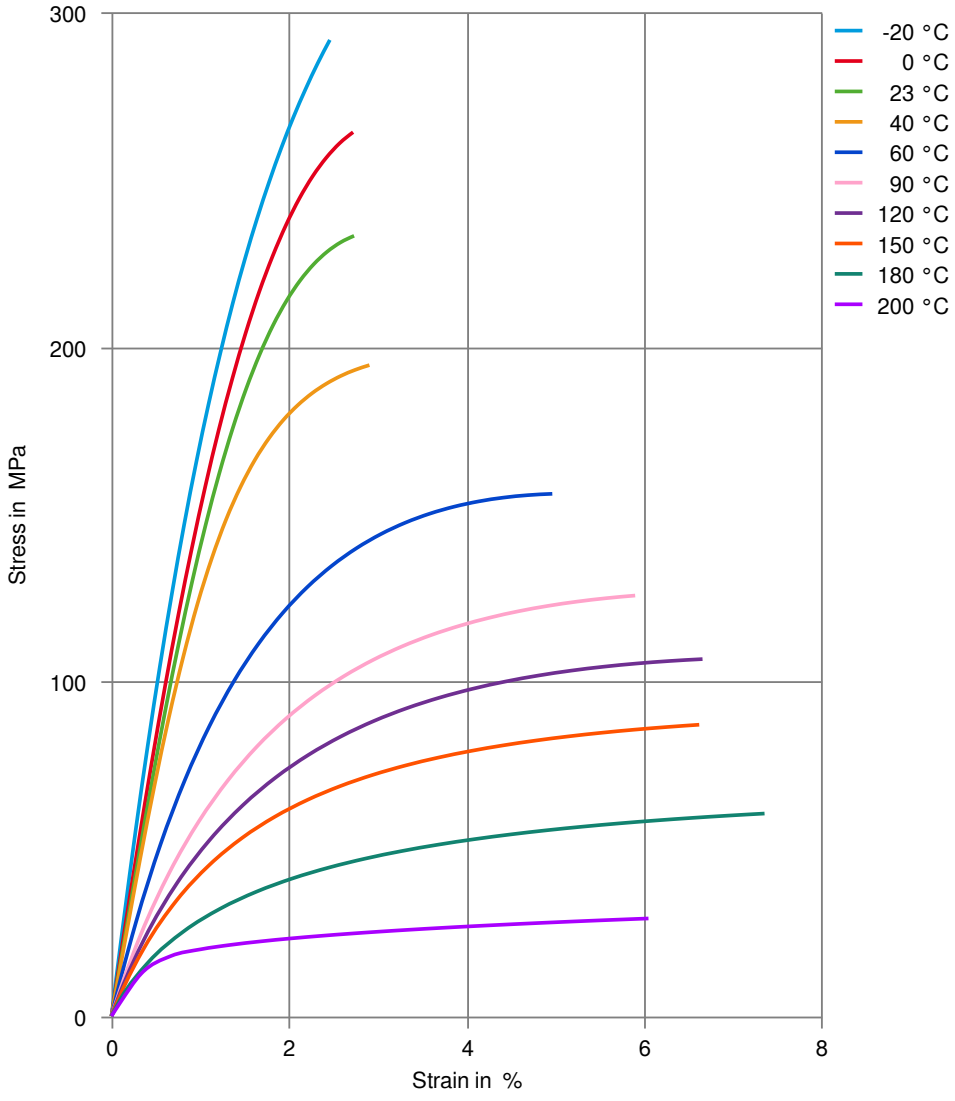
Stress-strain (dry)



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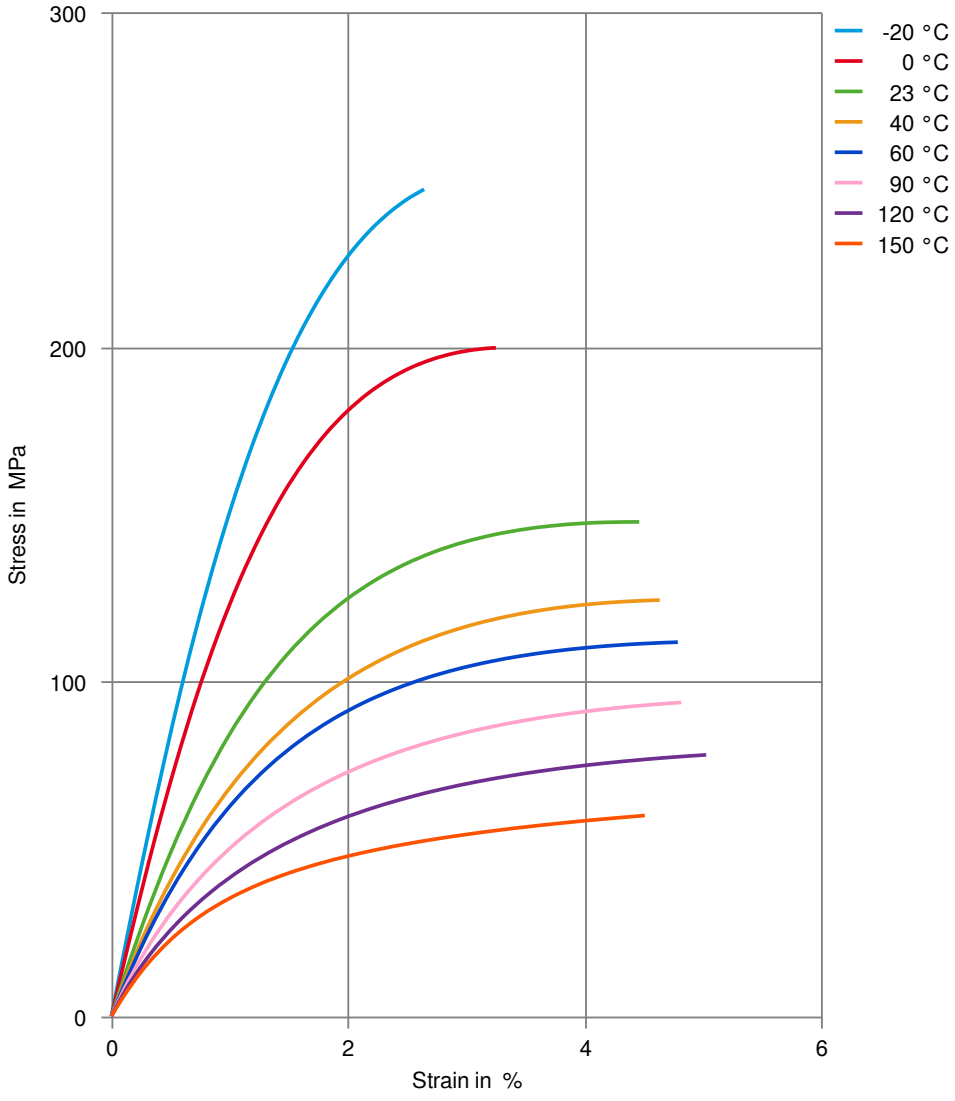
NYLON RESIN

Stress-strain (cond.)



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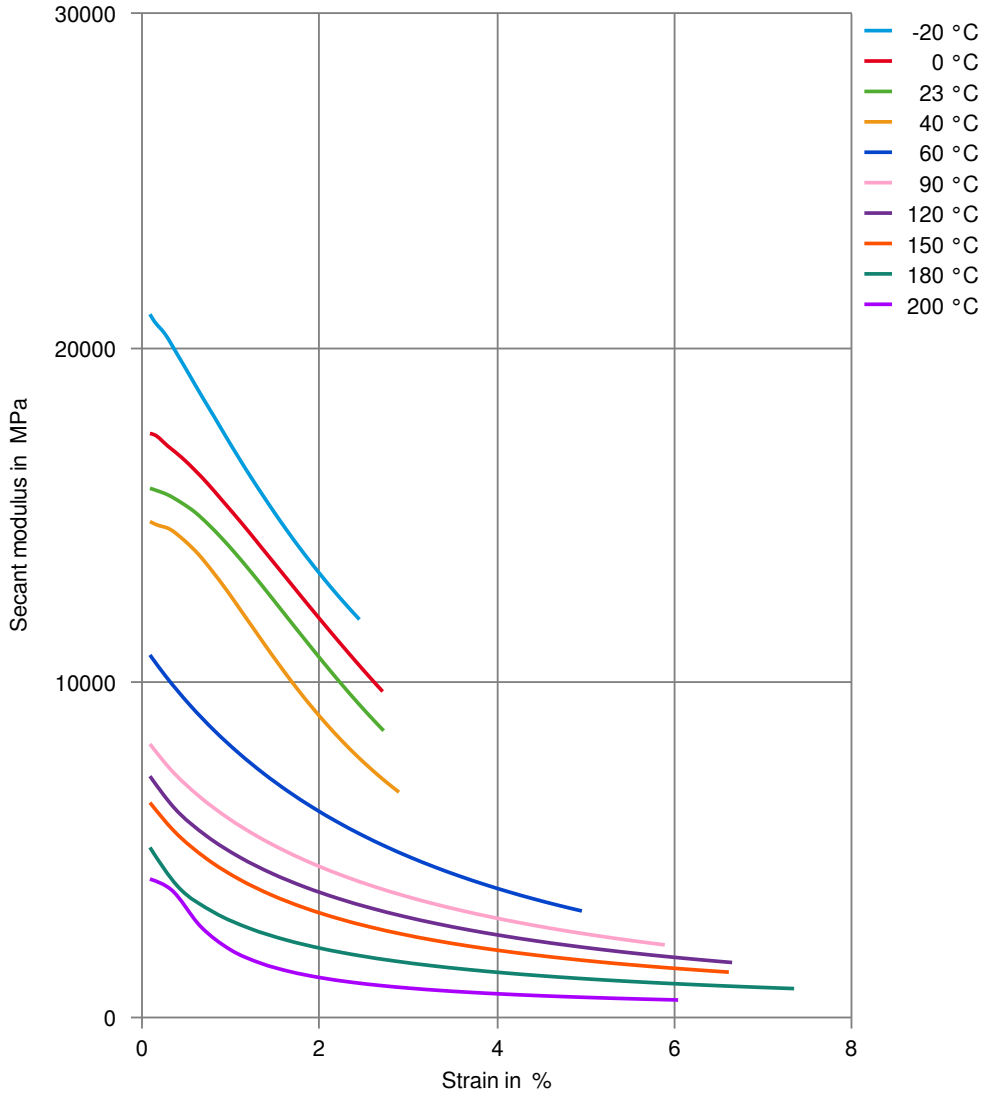
NYLON RESIN

Secant modulus-strain (dry)



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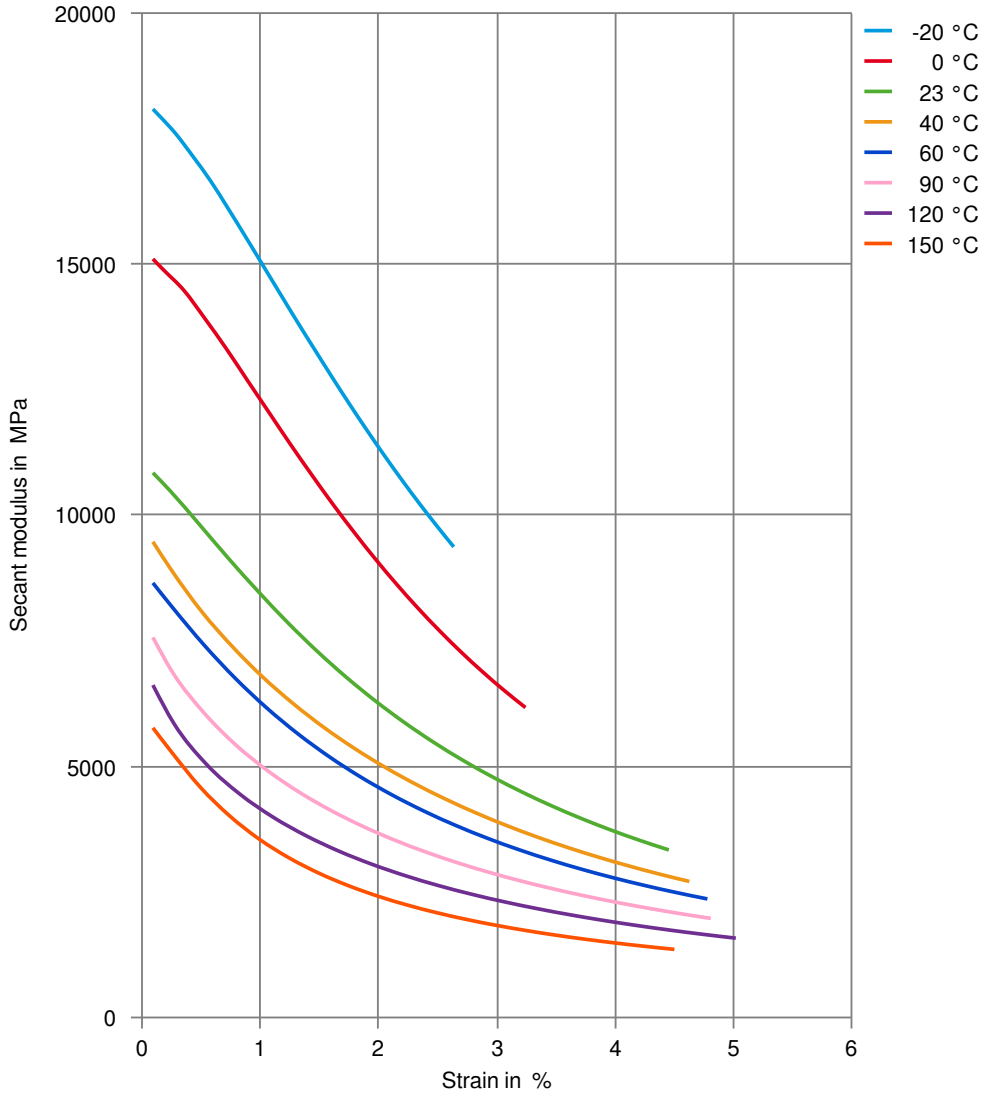
Secant modulus-strain (cond.)



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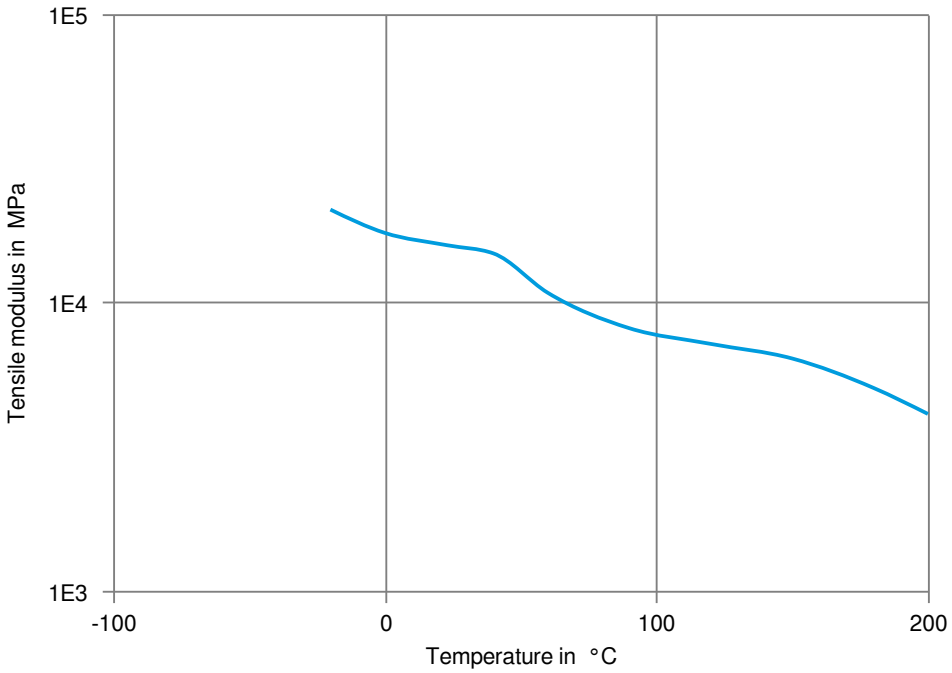
Tensile modulus-temperature (dry)



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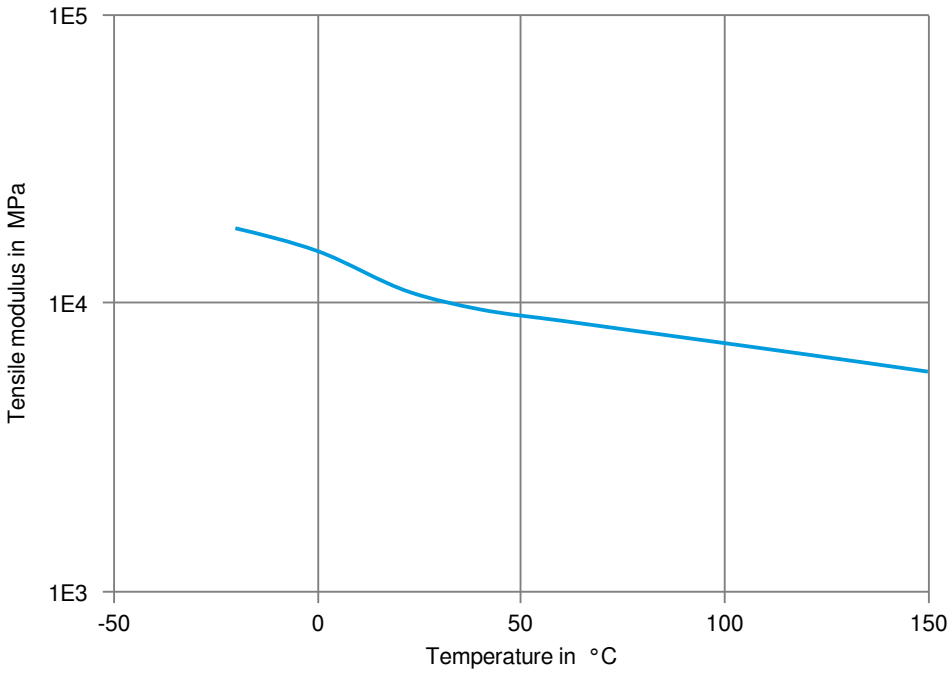
Tensile modulus-temperature (cond.)



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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: 2025-05-23 Source: Celanese Materials Database