Celanese
The chemistry inside innovation™

Zytel® FR95G25V0NH NC010

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® FR95G25V0NH NC010 is a 25% glass fibre reinforced, flame retardant polyamide resin for injection moulding. It is halogen and red phosphorous free, has high flow characteristics and excellent long term aging properties.

Product information

Resin Identification	PA66/6T-GF25FR(40)	ISO 1043
Part Marking Code	>PA66/6T-GF25FR(40)<	ISO 11469
ISO designation	ISO 16396-PA66/6T,GF25 FR(40),M1F1GN,S12-090	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	9500 / 8500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	120 / 90	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.2 / 2.2	%	ISO 527-1/-2
Flexural modulus	8500 / 8000	MPa	ISO 178
Flexural strength	190 / 170	MPa	ISO 178
Charpy impact strength, 23°C	35 / 31	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	5.4 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	4.5 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	4.5 / -	kJ/m²	ISO 179/1eA
Poisson's ratio	0.34 / 0.34		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	267 / *	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	210 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	25 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	27 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	17 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	57 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	70 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	130 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.4mm	160	°C	UL 746B

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RTI, electrical, 0.75mm	160[1]	°C	UL 746B
RTI, electrical, 1.5mm	160	°C	UL 746B
RTI, electrical, 3.0mm	160	°C	UL 746B
RTI, impact, 0.75mm	155	°C	UL 746B
RTI, impact, 1.5mm	155	°C	UL 746B
RTI, impact, 3.0mm	155	°C	UL 746B
RTI, strength, 0.75mm	155	°C	UL 746B
RTI, strength, 1.5mm	155 / *	°C	UL 746B
RTI, strength, 3.0mm	155	°C	UL 746B
Temperature index, tensile strength, 20 000h	160 / *	°C	IEC 60216-1
Temperature index, tensile strength, 5000h	190 / *	°C	IEC 60216-1

[1]: f1

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.4 / *	mm	IEC 60695-11-10
UL recognition	yes[2] / *		UL 94
Burning Behav. 5V at thickness h	5VA / *	class	IEC 60695-11-20
Thickness tested	1.5 / *	mm	IEC 60695-11-20
UL recognition	yes / *		UL 94
Oxygen index	32 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 0.4mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	725 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	700 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.0mm	725 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	725 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	725 / -	°C	IEC 60695-2-13
FMVSS Class	DNI		ISO 3795 (FMVSS 302)

[2]: UL yellow card (f1)

Electrical properties

	dry/cond.		
Volume resistivity	>1E13 / 8E11	Ohm.m	IEC 62631-3-1
Surface resistivity	* / >1E15	Ohm	IEC 62631-3-2
Electric strength	37 / 37	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.6[3] / *	%	Sim. to ISO 62
Water absorption, 2mm	4 / *	%	Sim. to ISO 62
Density	1440 / -	kg/m³	ISO 1183

[3]: 4mm wall thickness

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Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.1[4]	%
Melt Temperature Optimum	290	°C
Min. melt temperature	280	°C
Max. melt temperature	300	°C
Screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	95	°C
Min. mould temperature	70	°C
Max. mould temperature	120	°C
Hold pressure range	50 - 100	MPa
Hold pressure time	2.5	s/mm
Ejection temperature	214	°C

[4]: flame retardant grade below 0.1%

Characteristics

Processing	Injection Moulding, Other Extrusion
Additives	Flame retardant, Non-halogenated/Red phosphorous free flame retardant
Special characteristics	Flame retardant

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
General Motors	GMW18122P-PA-GF25-TypeA2	Natural
General Motors	GMW18122P-PA-GF25-TypeAF	Natural

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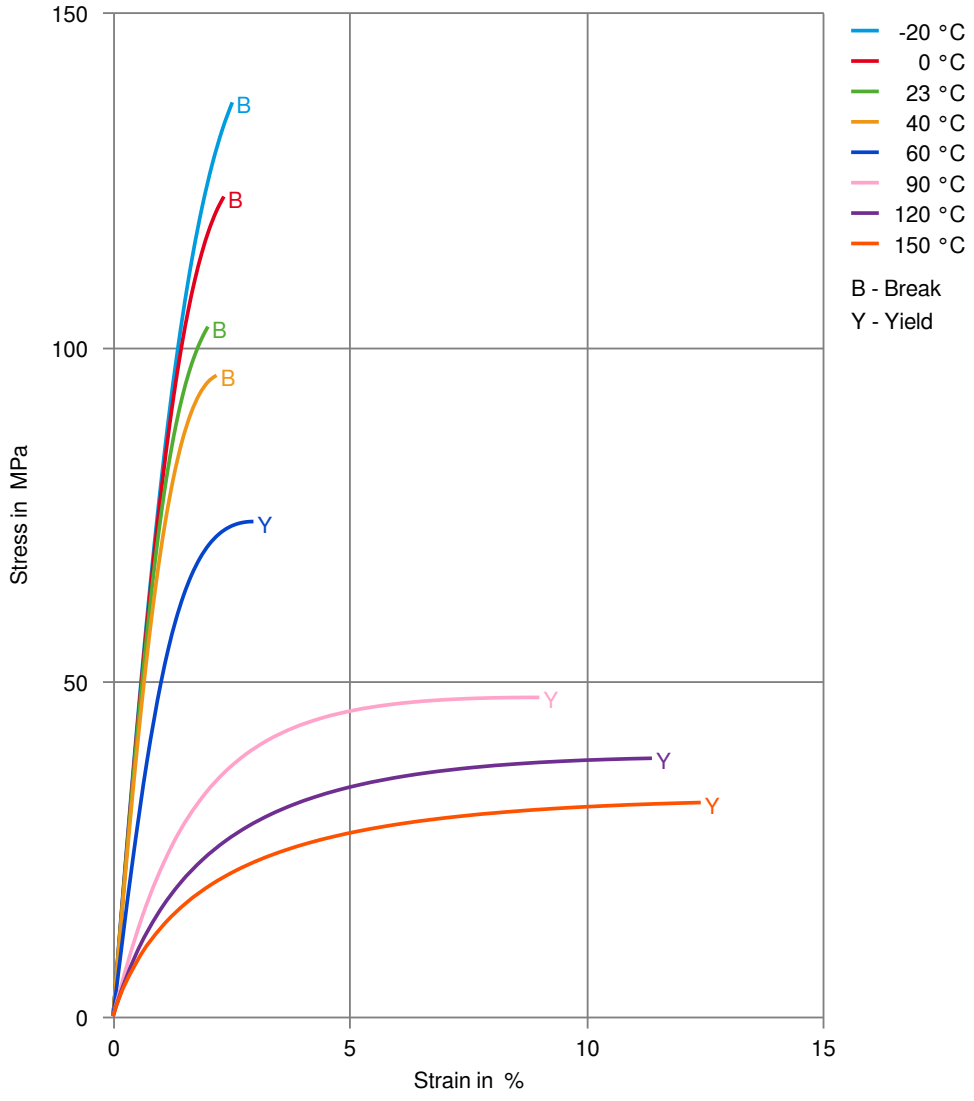
Stress-strain (dry)



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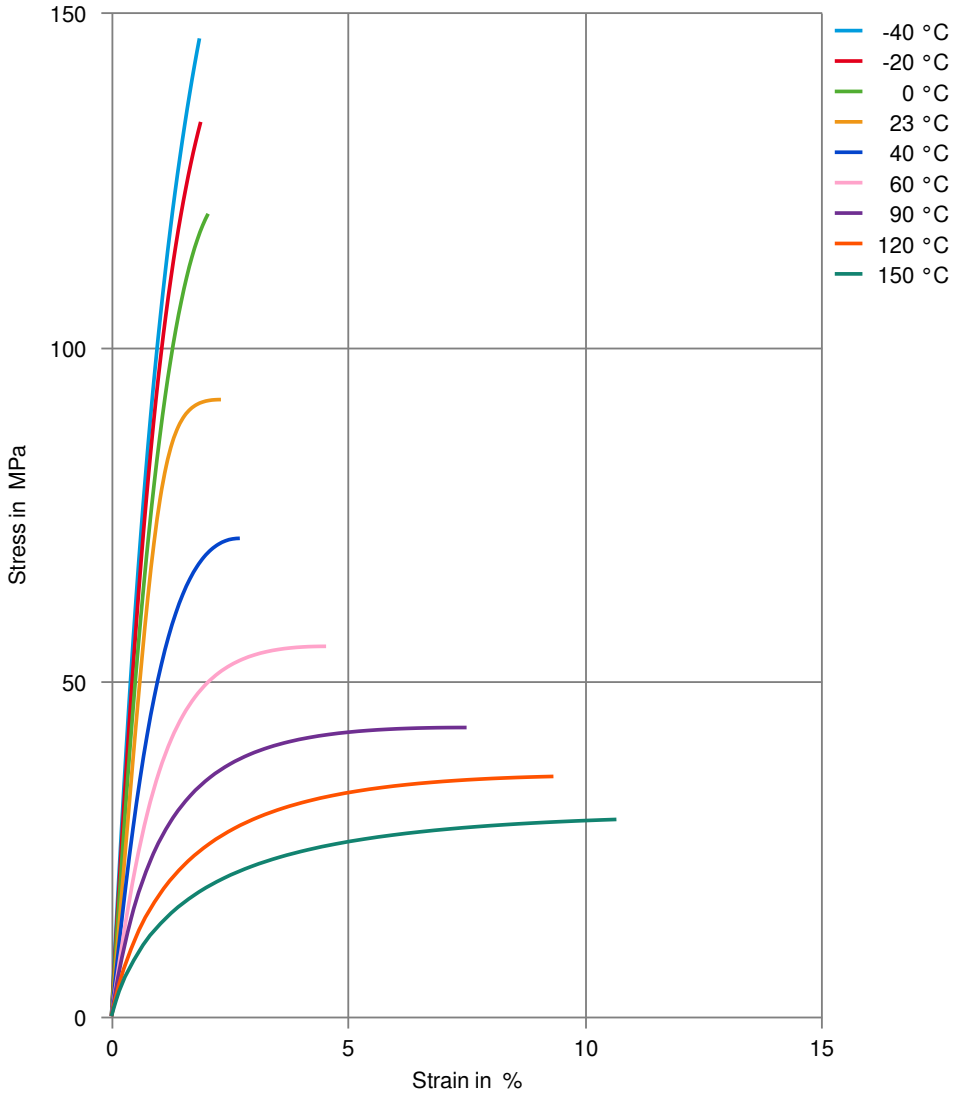
NYLON RESIN

Stress-strain (cond.)



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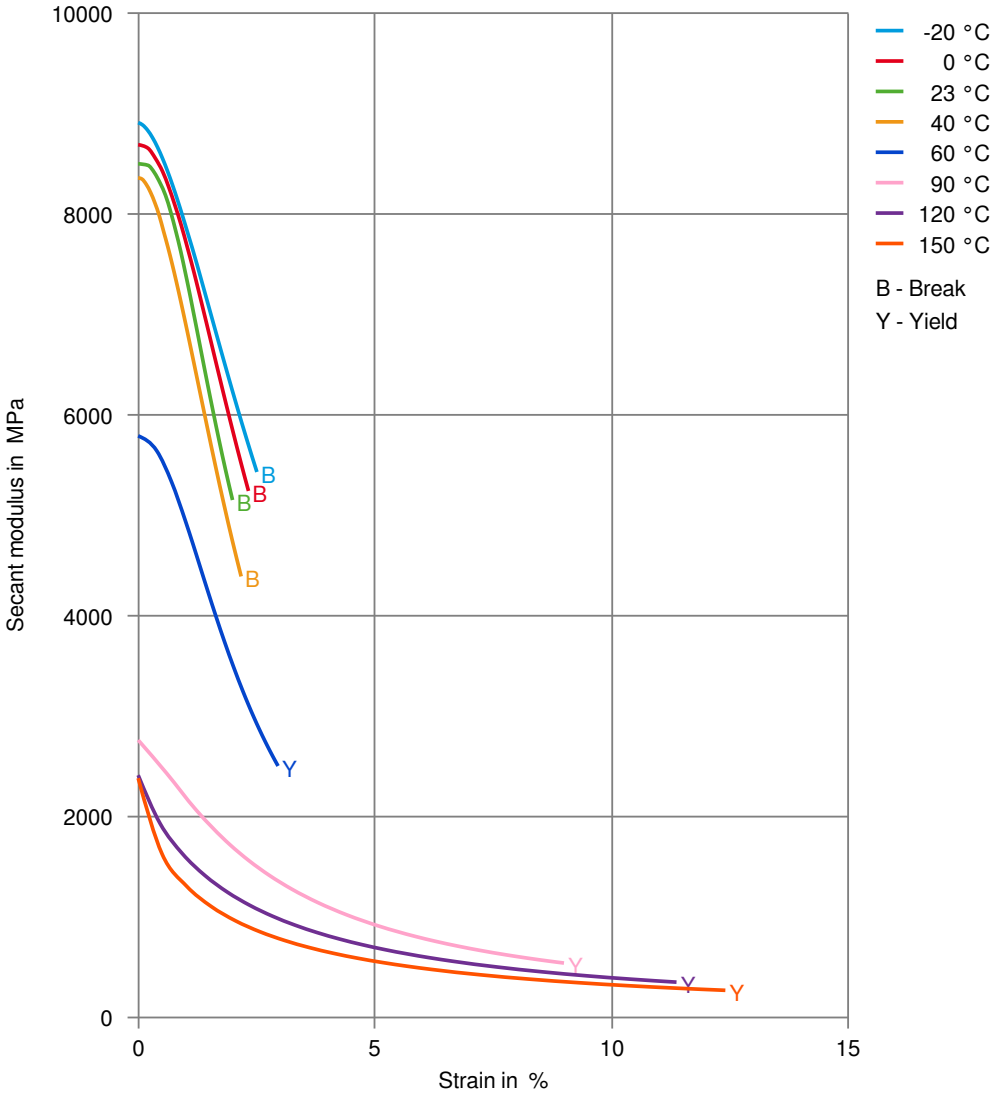
NYLON RESIN

Secant modulus-strain (dry)



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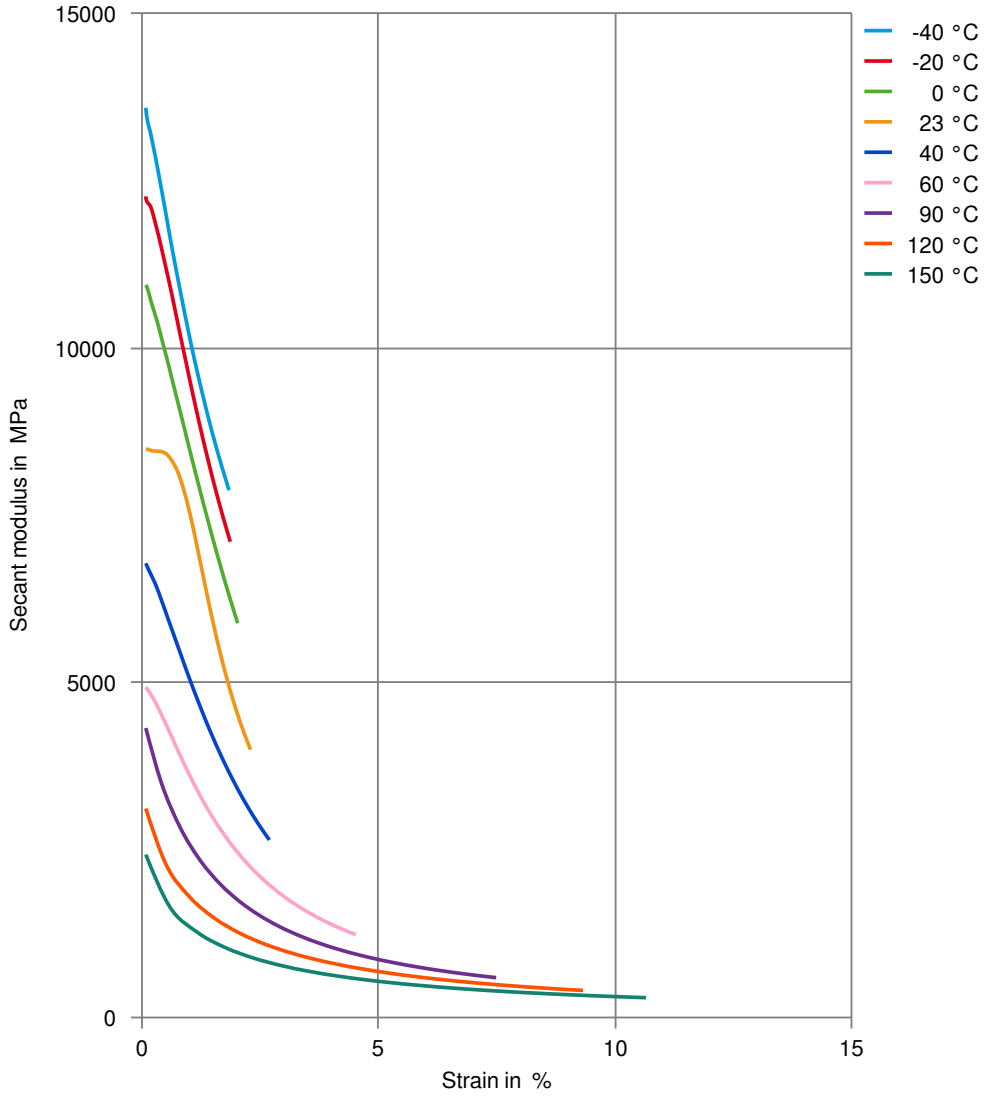
NYLON RESIN

Secant modulus-strain (cond.)



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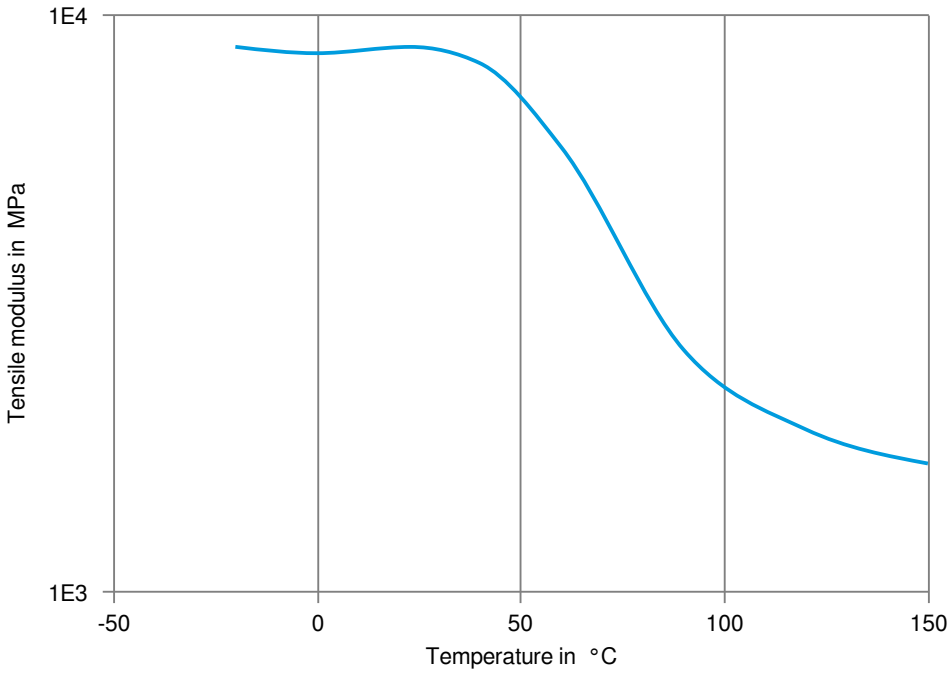
NYLON RESIN

Tensile modulus-temperature (dry)



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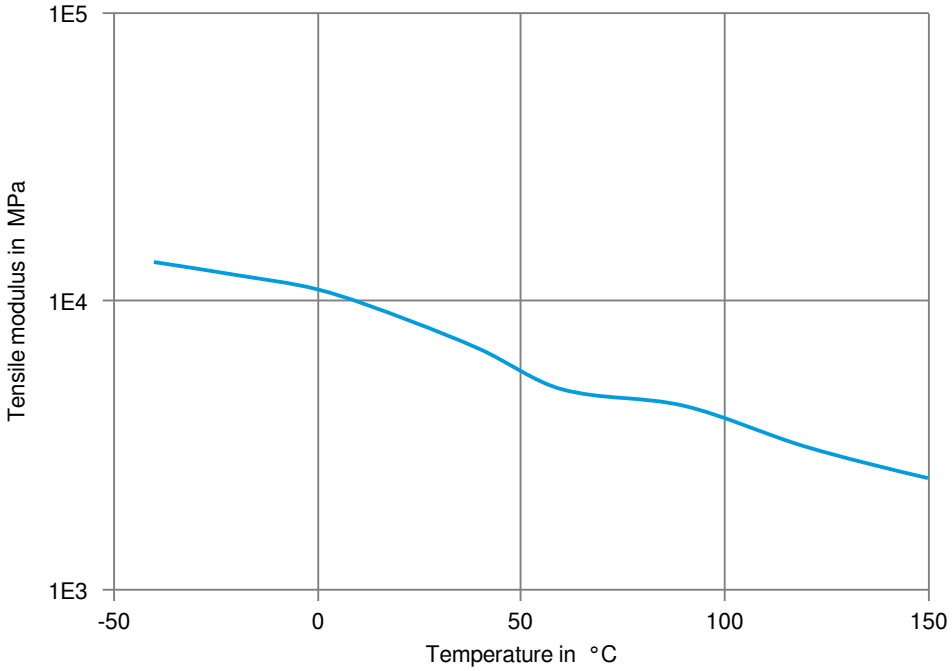
NYLON RESIN

Tensile modulus-temperature (cond.)



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Mineral oils

Mineral oils

- ✔ SAE 10W40 multigrade motor oil, 130 °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

- ✘ Zinc Chloride solution (50% by mass), 23 °C

Other

- ✔ Water, 23 °C
- ✘ Water, 90 °C
- ✘ Coolant Glysantin G48, 1:1 in water, 125 °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).