Celanese
The chemistry inside innovation™

Zytel® 73G30HSL 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® 73G30HSL NC010 is a 30% glass fibre reinforced, heat stabilised polyamide 6 for injection moulding.

Product information

Resin Identification	PA6-GF30	ISO 1043
Part Marking Code	>PA6-GF30<	ISO 11469
ISO designation	ISO 16396-PA6,GF30,M1GHNR,S14-090	

Rheological properties

	dry/cond.		
Viscosity number	140 / *	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	9500 / 6000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	190 / 120	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.5 / 6	%	ISO 527-1/-2
Flexural modulus	8500 / 5500	MPa	ISO 178
Flexural strength	280 / 180	MPa	ISO 178
Tensile creep modulus, 1h	* / 5500	MPa	ISO 899-1
Tensile creep modulus, 1000h	* / 4500	MPa	ISO 899-1
Charpy impact strength, 23°C	100 / 100	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	80 / 80	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	16 / 23	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	10 / 11	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -40°C	10 / 10	kJ/m^2	ISO 179/1eA
Puncture energy, 23°C	3.5 / 6.5	J	ISO 6603-2
Izod notched impact strength, 23°C	15 / 20	kJ/m^2	ISO 180/1A
Izod notched impact strength, -30°C	10.0 / 11.0	kJ/m^2	ISO 180/1A
Izod impact strength, 23°C	80 / -	kJ/m^2	ISO 180/1U
Hardness, Rockwell, R-scale	121 / -		ISO 2039-2
Ball indentation hardness, H 961/30	230 / 150	MPa	ISO 2039-1
Poisson's ratio	0.34 / 0.35		

Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	221 / *	°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	210 / *	°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	215 / *	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	26 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	75 / *	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.26	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	9.1E-8	m^2/s	ISO 22007-4
Specific heat capacity of melt	2280	J/(kg K)	ISO 22007-4
RTI, electrical, 0.75mm	65	°C	UL 746B
RTI, electrical, 1.5mm	65	°C	UL 746B
RTI, electrical, 3.0mm	65	°C	UL 746B
RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 1.5mm	65	°C	UL 746B
RTI, impact, 3.0mm	65	°C	UL 746B
RTI, strength, 0.75mm	65	°C	UL 746B
RTI, strength, 1.5mm	65 / *	°C	UL 746B
RTI, strength, 3.0mm	65	°C	UL 746B

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
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	21 / *[DS]	%	ISO 4589-1/-2
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	50	mm/min	ISO 3795 (FMVSS 302)

[DS]: Derived from similar grade

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	2.1 / *	%	Sim. to ISO 62
Water absorption, 2mm	6.3 / *	%	Sim. to ISO 62
Density	1360 / -	kg/m^3	ISO 1183
Density of melt	1200	kg/m^3	

VDA Properties

	dry/cond.		
Emission of organic compounds	8.5	µgC/g	VDA 277
Odour	3.5	class	VDA 270
Fogging, F-value (refraction)	95 / *	%	ISO 6452
Fogging, G-value (condensate)	0.1 / *	mg	ISO 6452

Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

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

Characteristics

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

Automotive

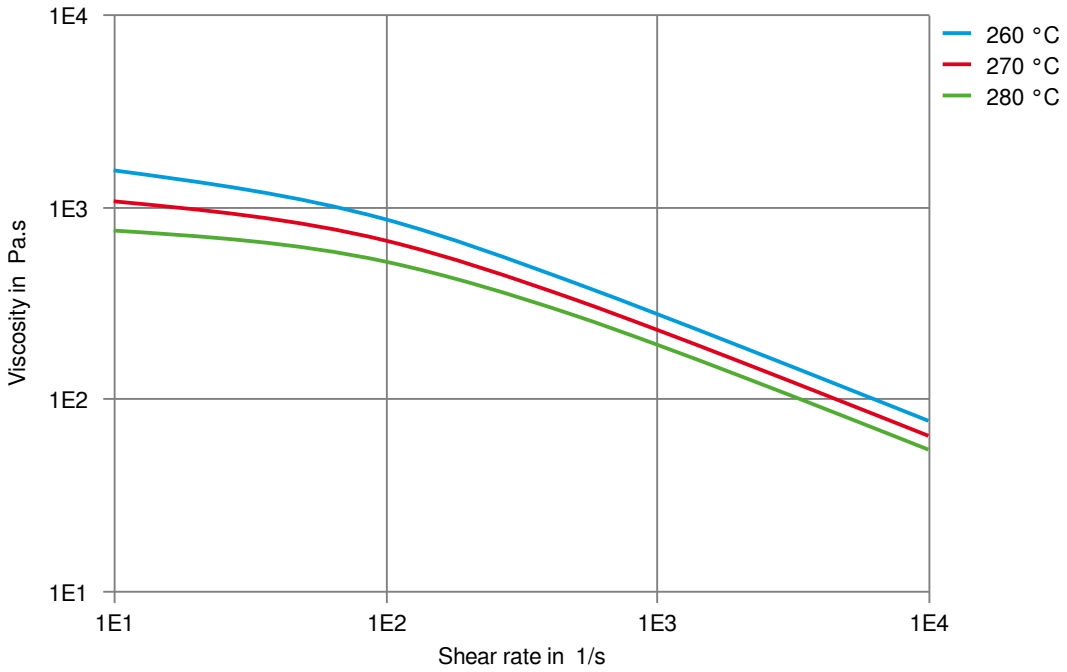
OEM	STANDARD	ADDITIONAL INFORMATION
Ford	WSS-M4D993-B1	
Geely	Q/JL J124010-2019	
Mercedes-Benz	DBL5410.00 PA6 GF30	
Stellantis	MS.50150 / PA6.GF30.8500T.10C.HS	CPN4269, 01994_10_00178, 61*/213M+/215E+/13/C1B
Stellantis - Chrysler	MS.50017 / CPN-4269	Natural
VW Group	TL 524 40 PA6-GF30	
VW Group	VW 50125 PA6-007	
VW Group	VW 50134 PA6-7-A	

Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Viscosity-shear rate

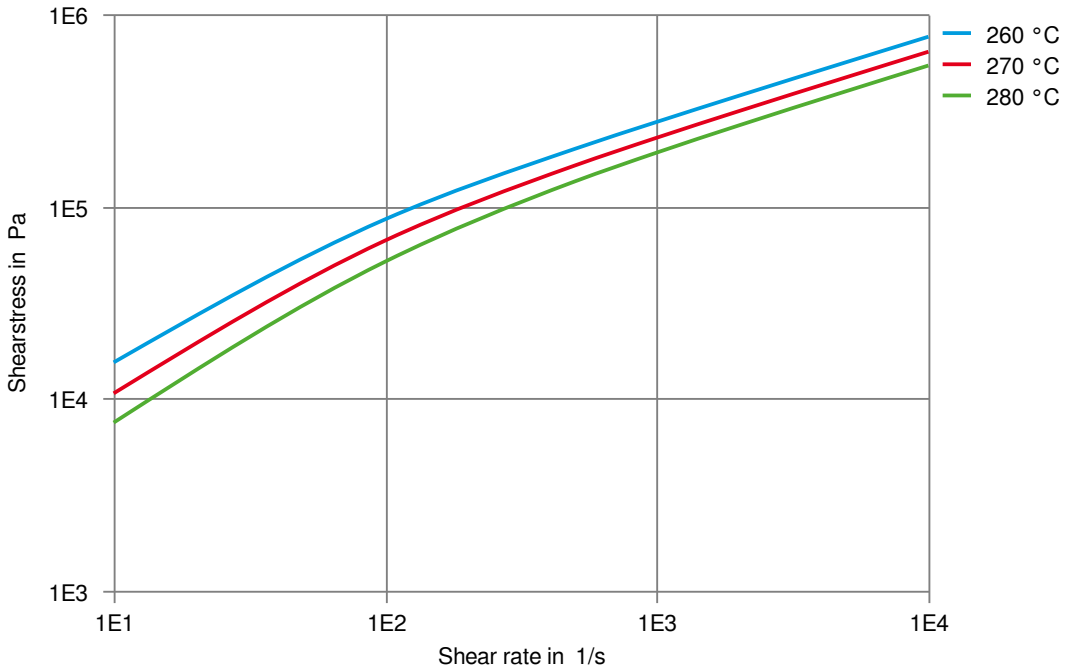


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Shearstress-shear rate

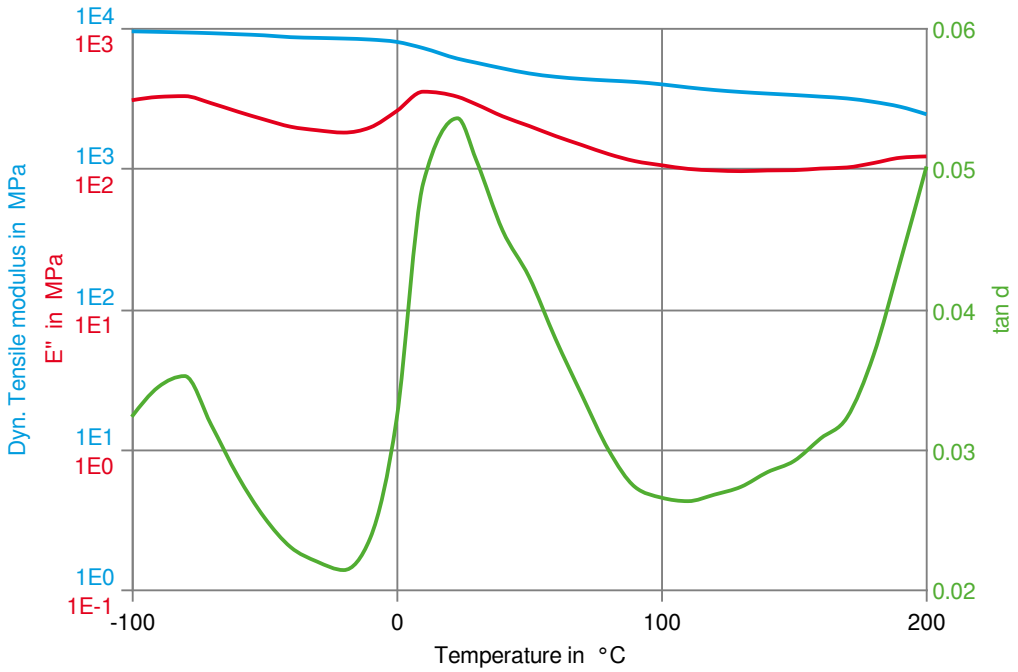


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Dynamic Tensile modulus-temperature (cond.)

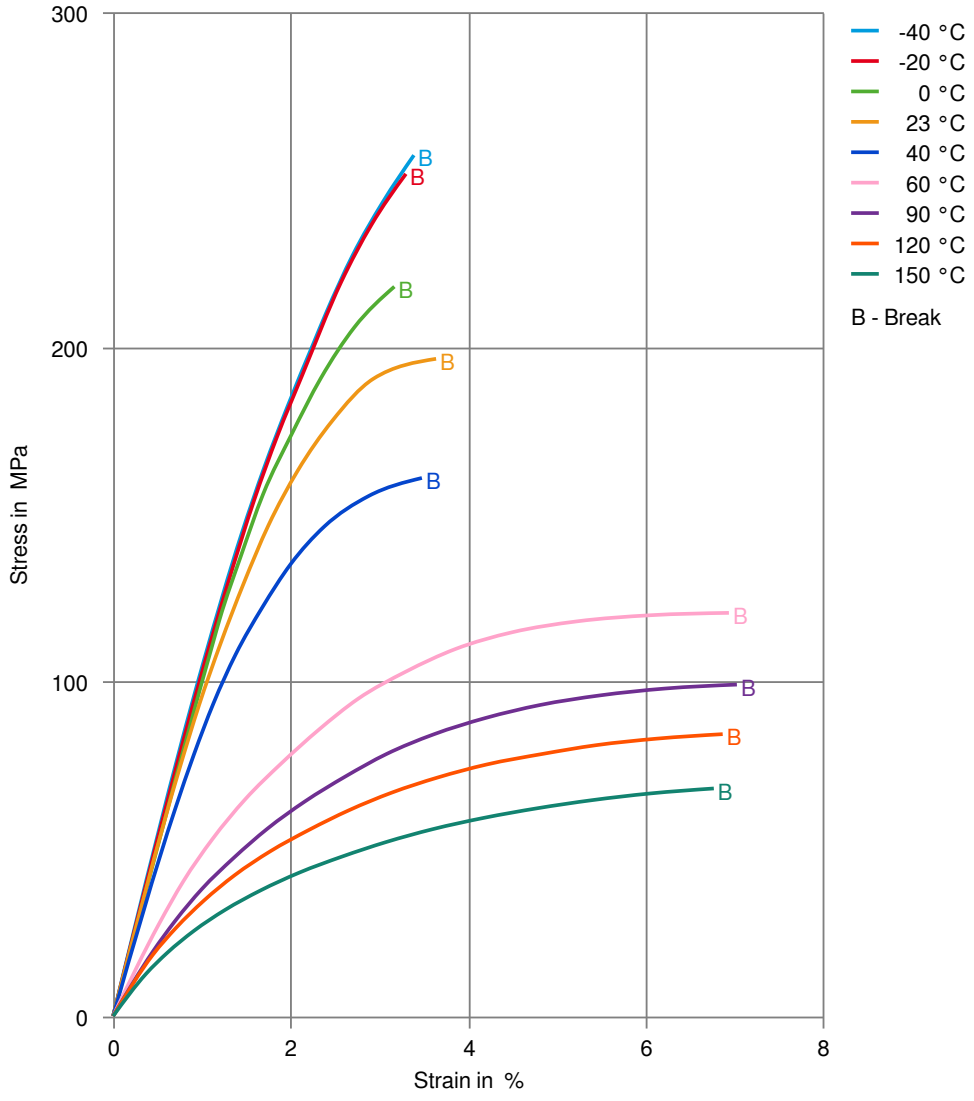


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (dry)

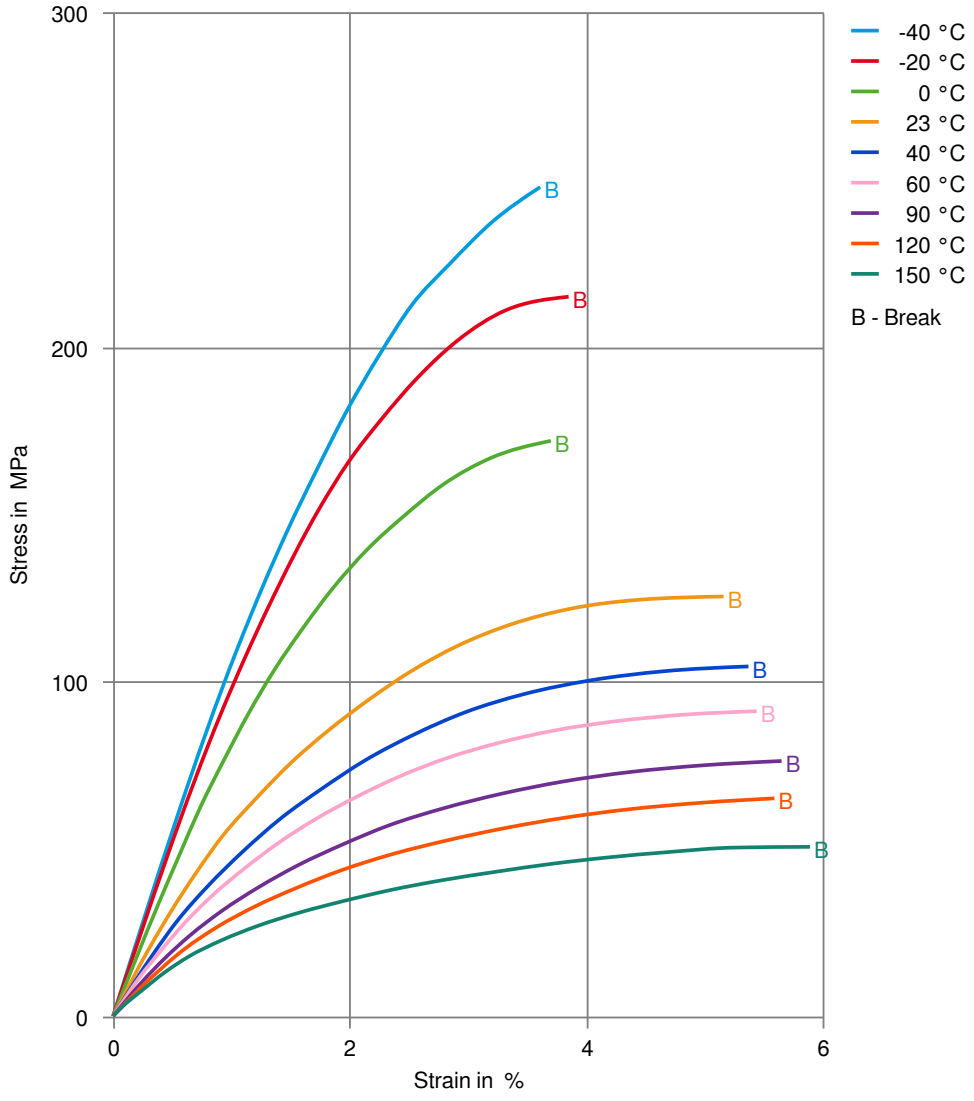


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (cond.)

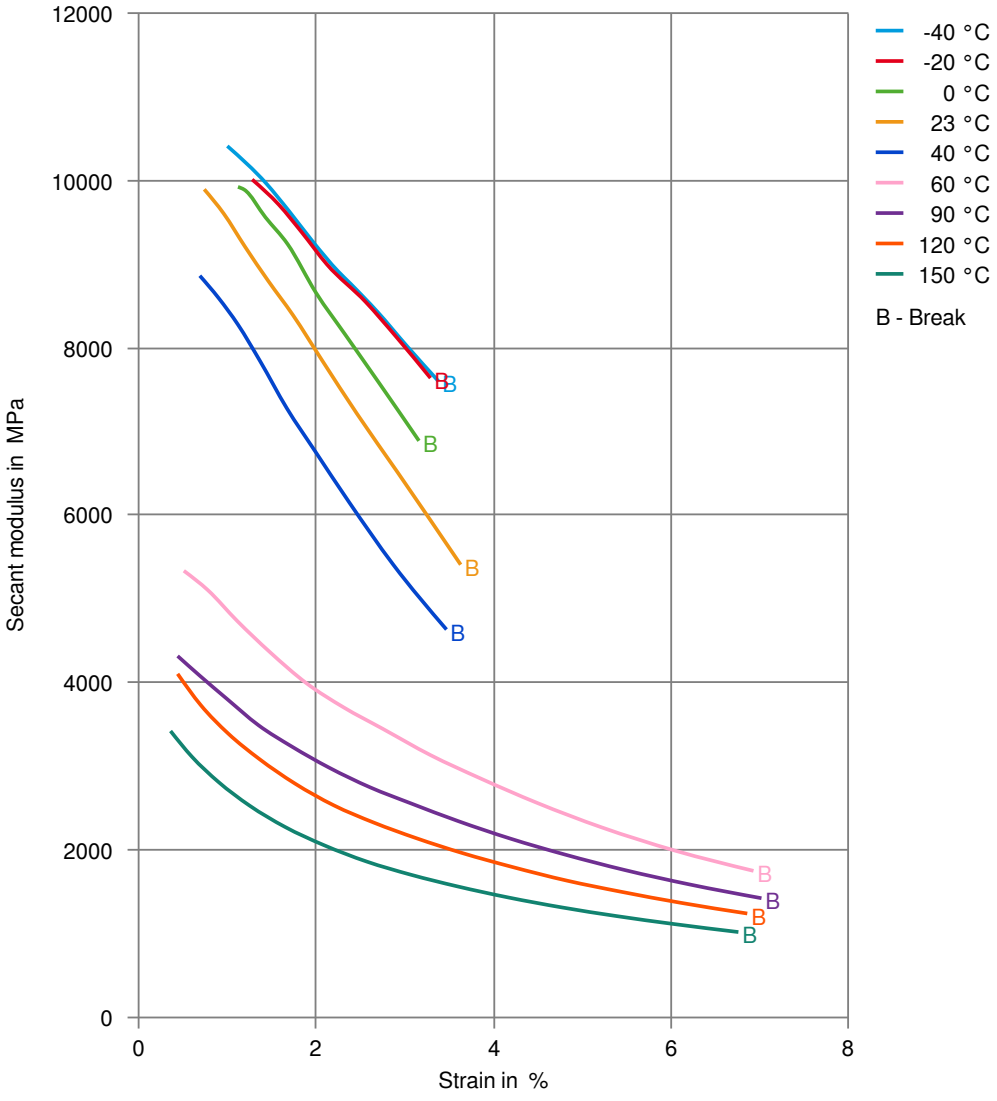


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Secant modulus-strain (dry)

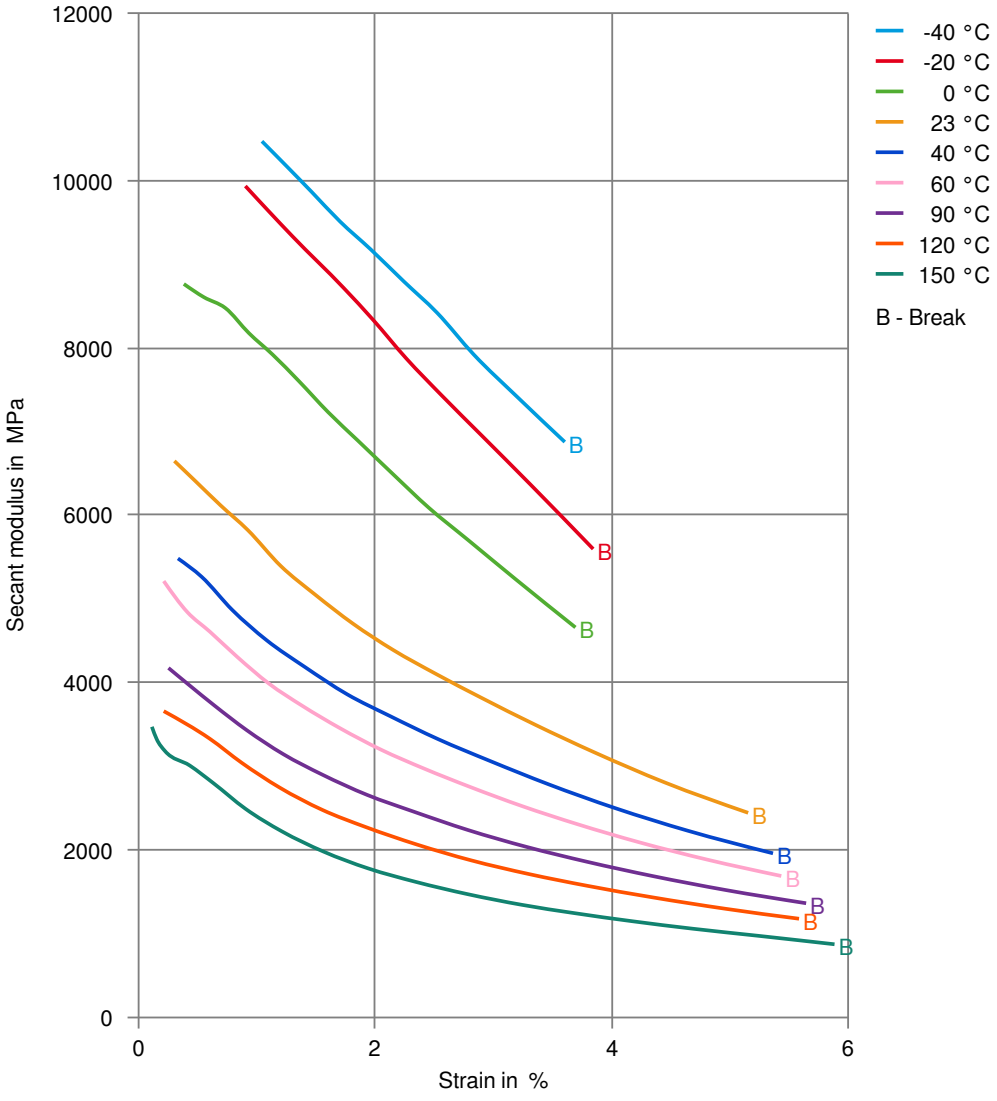


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Secant modulus-strain (cond.)

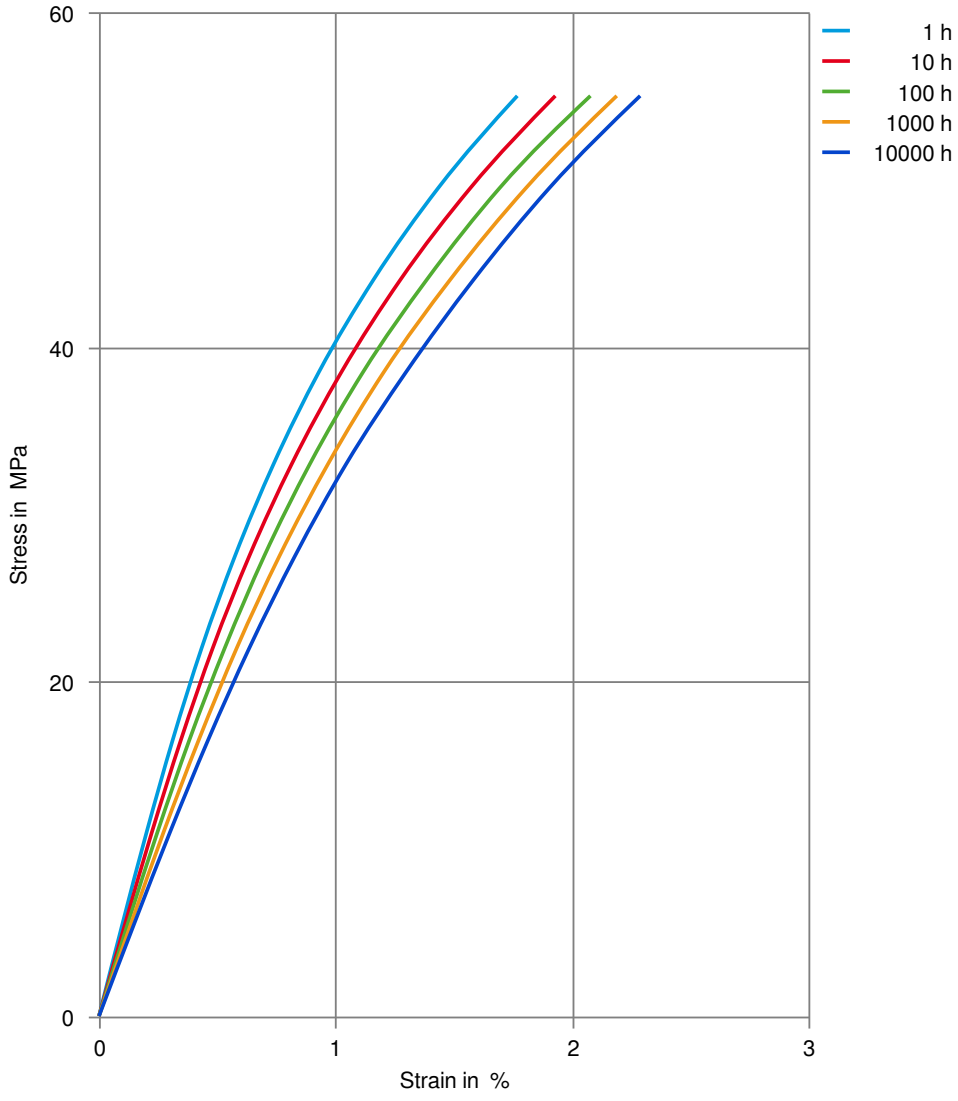


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (isochronous) 23 °C (cond.)
(measured on Zytel® 73G30L NC010)

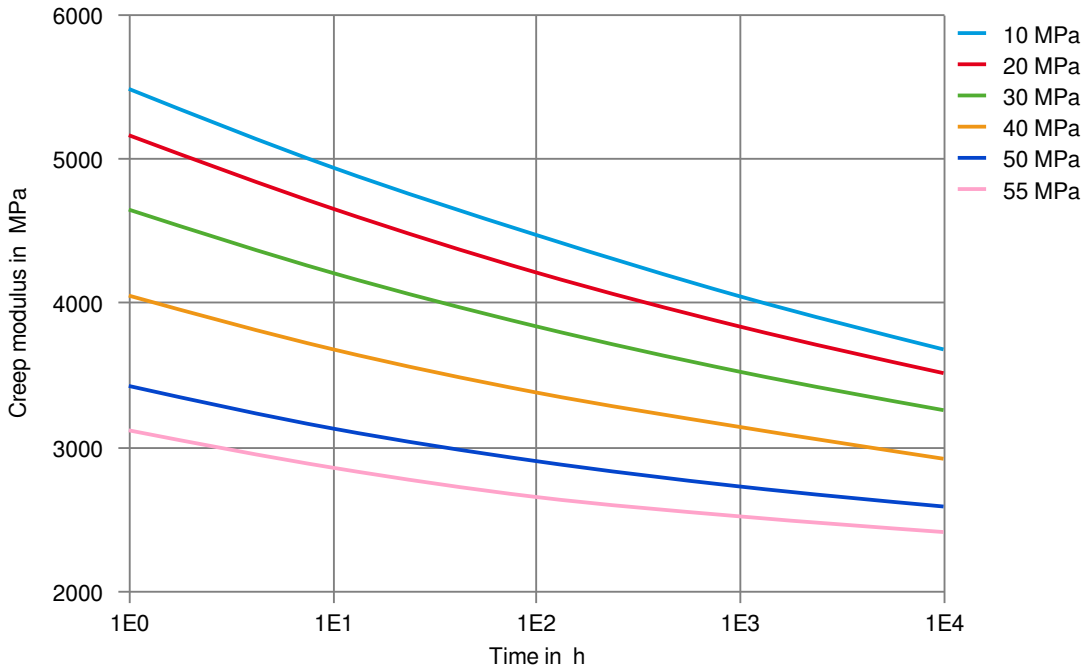


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Creep modulus-time 23 °C (cond.)
(measured on Zytel® 73G30L NC010)

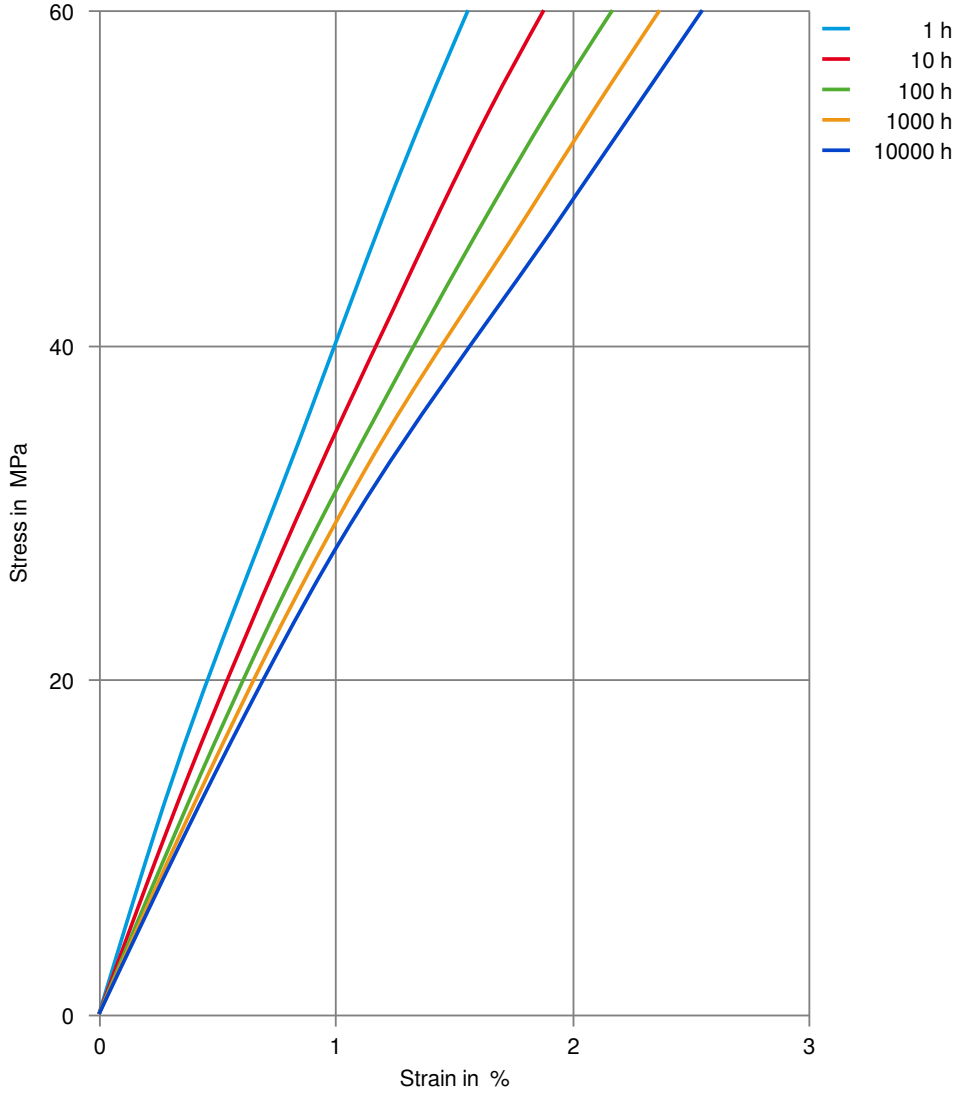


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (isochronous) 60 °C (dry)
(measured on Zytel® 73G30L NC010)

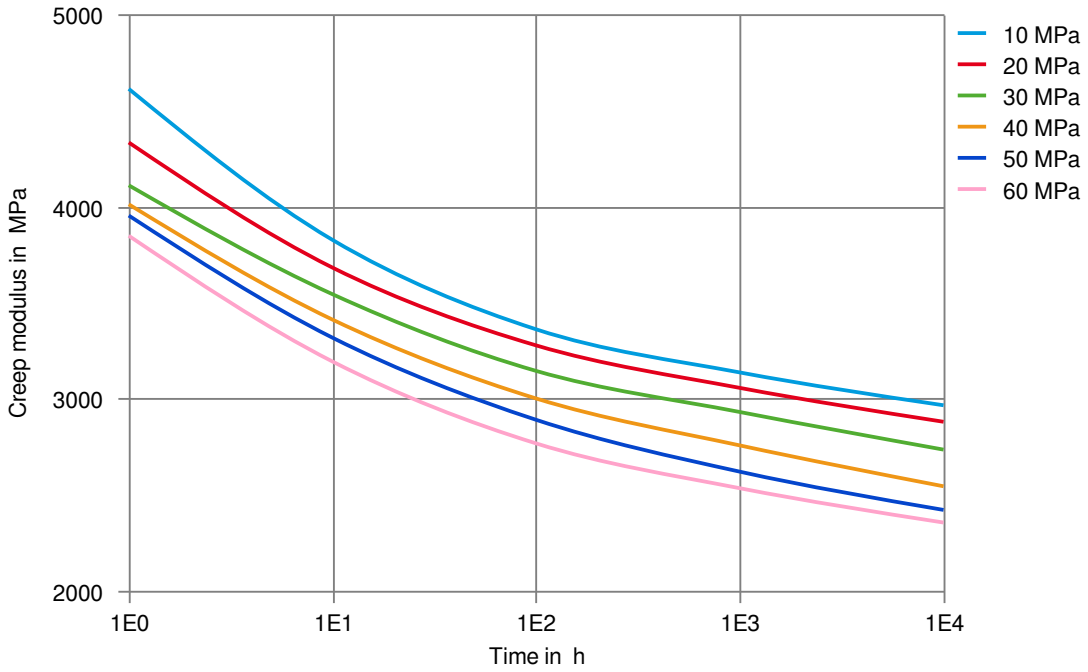


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Creep modulus-time 60 °C (dry)
(measured on Zytel® 73G30L NC010)

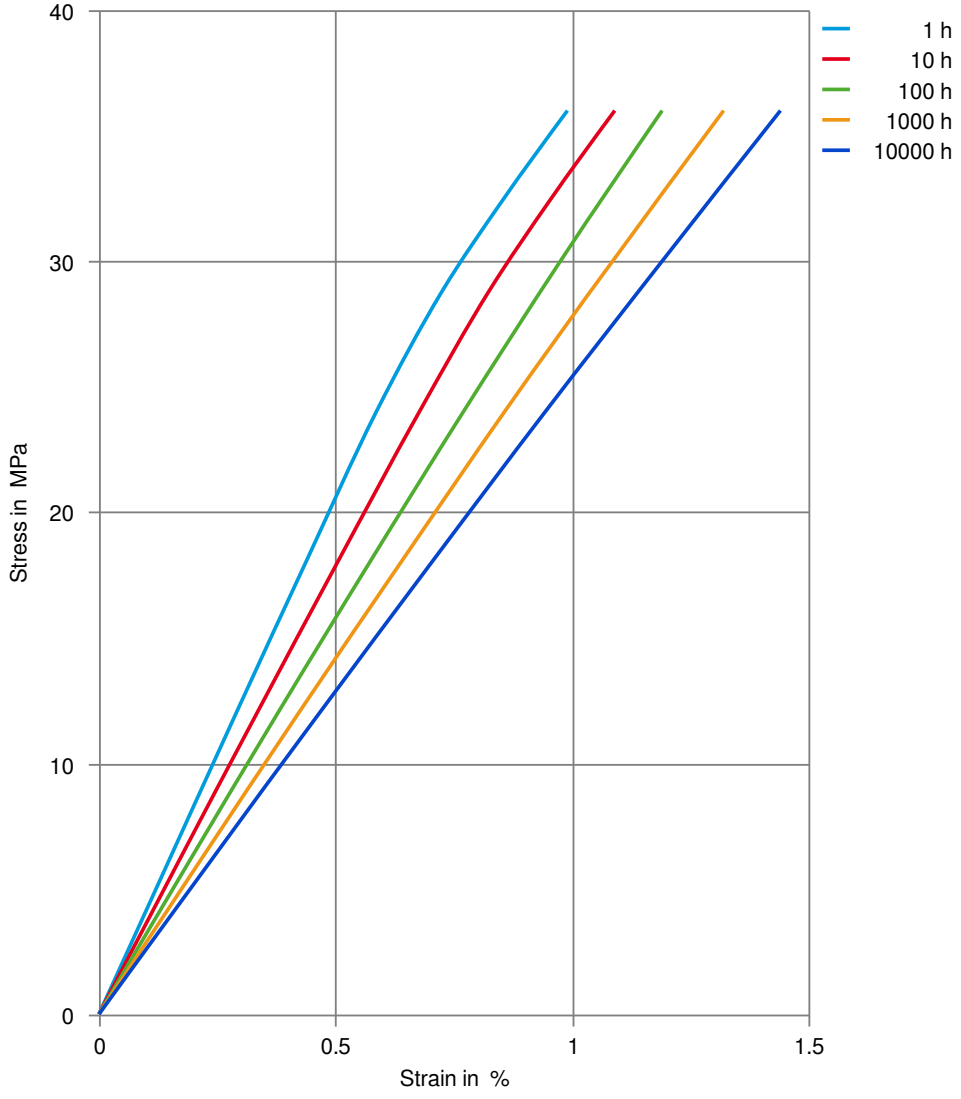


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (isochronous) 90 °C (dry)
(measured on Zytel® 73G30L NC010)

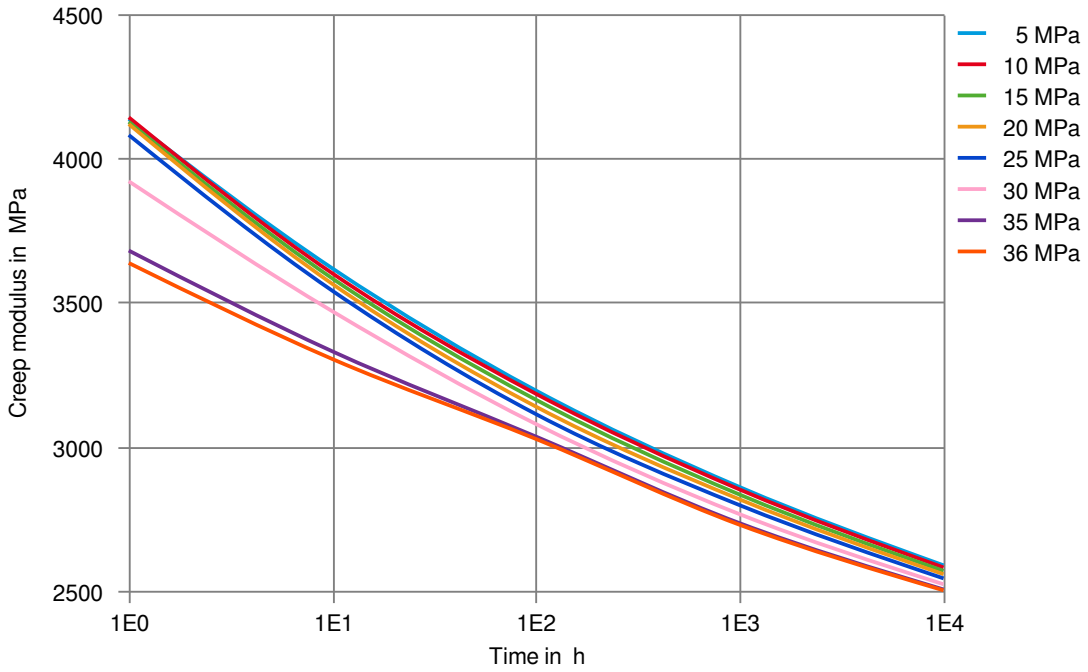


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Creep modulus-time 90 °C (dry)
(measured on Zytel® 73G30L NC010)

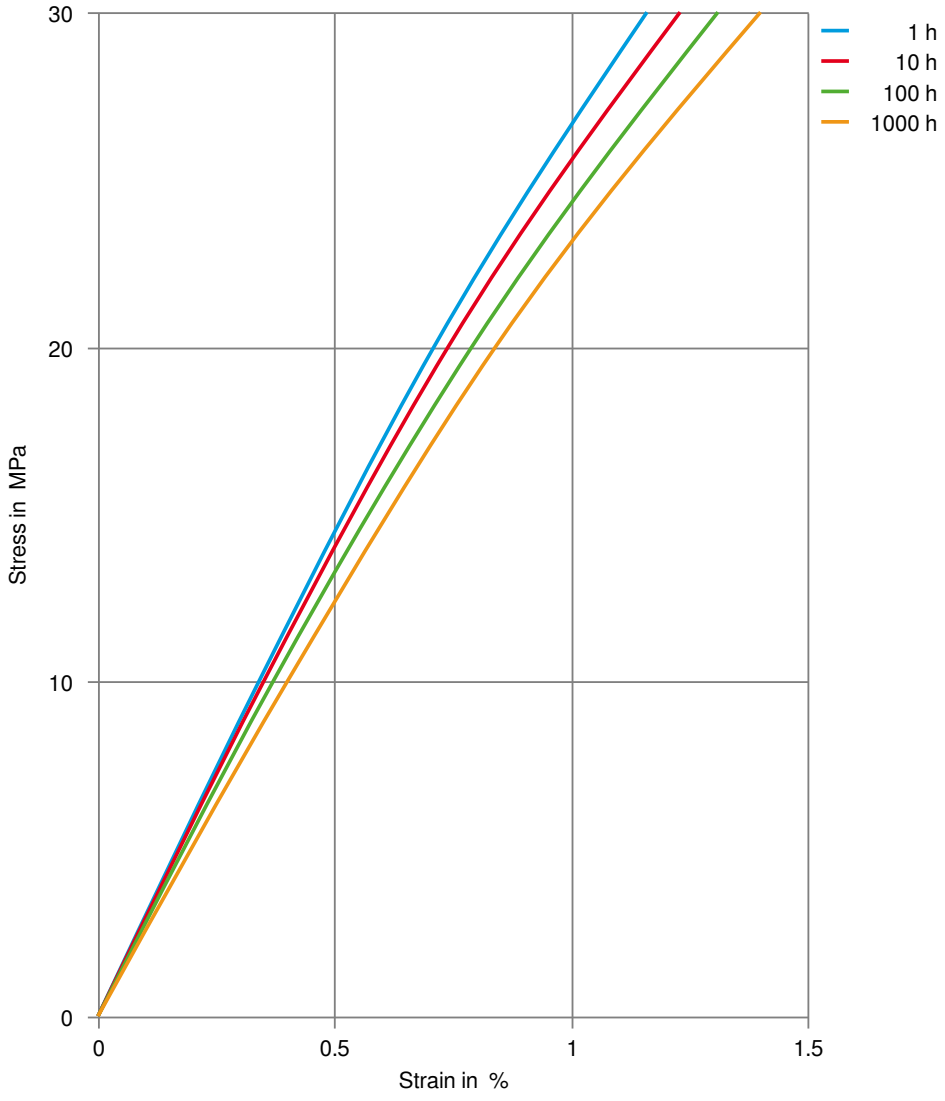


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (isochronous) 100 °C (dry)

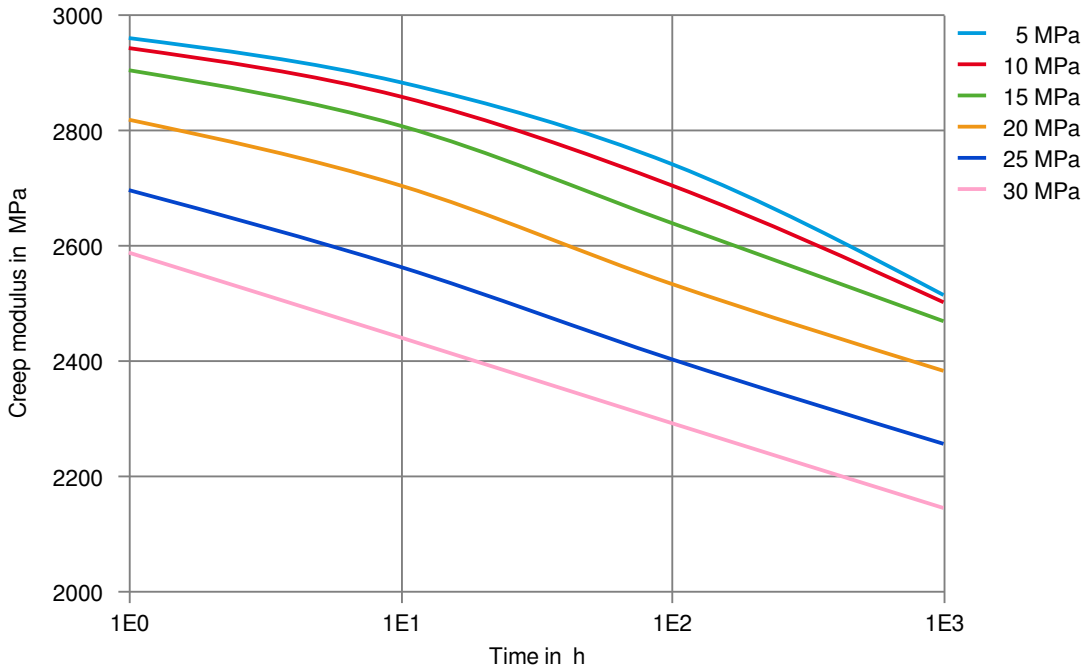


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Creep modulus-time 100 °C (dry)

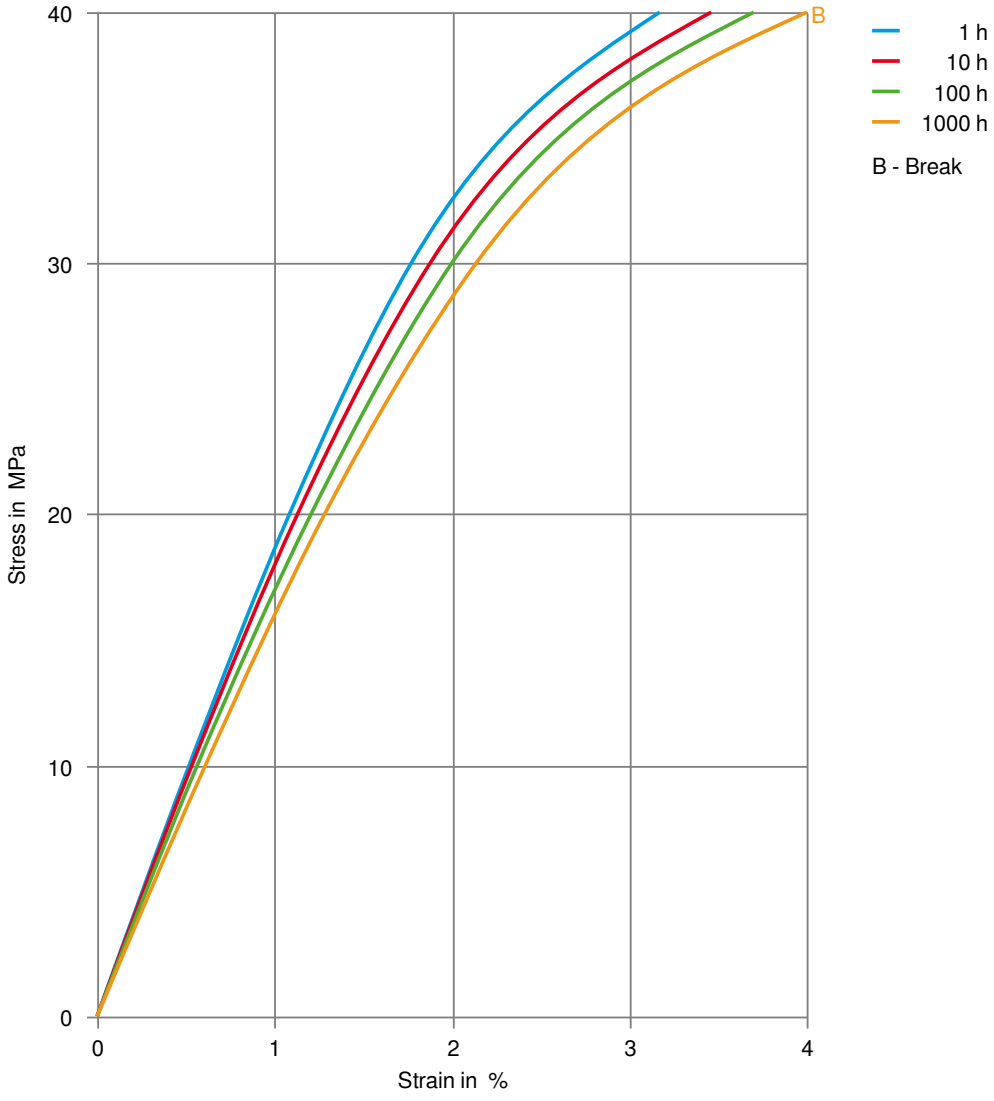


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (isochronous) 150 °C (dry)

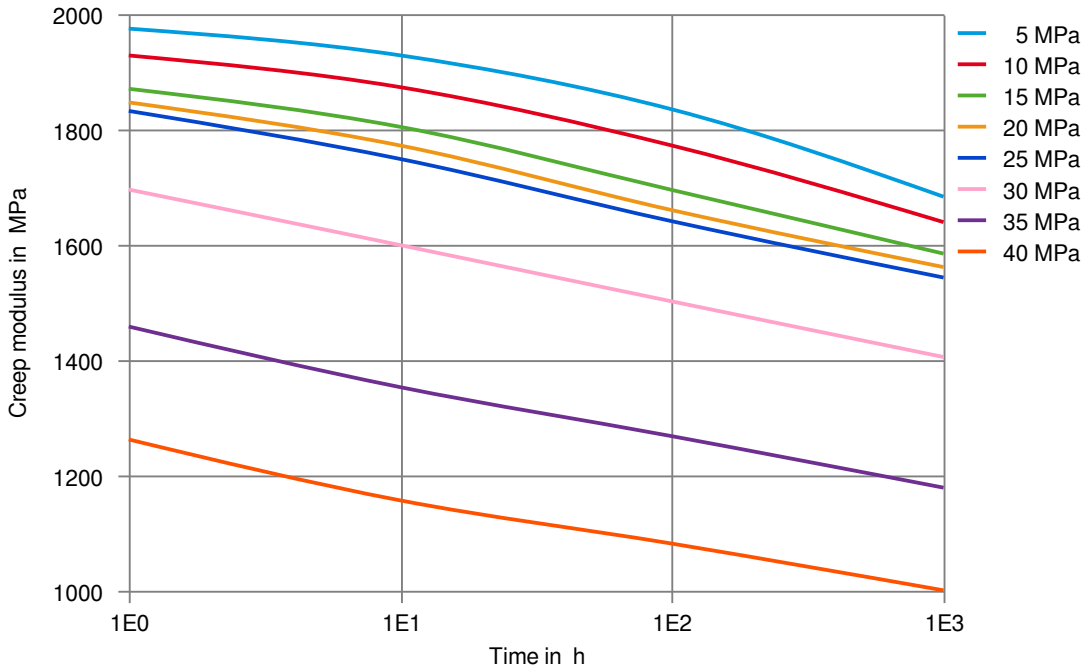


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Creep modulus-time 150 °C (dry)

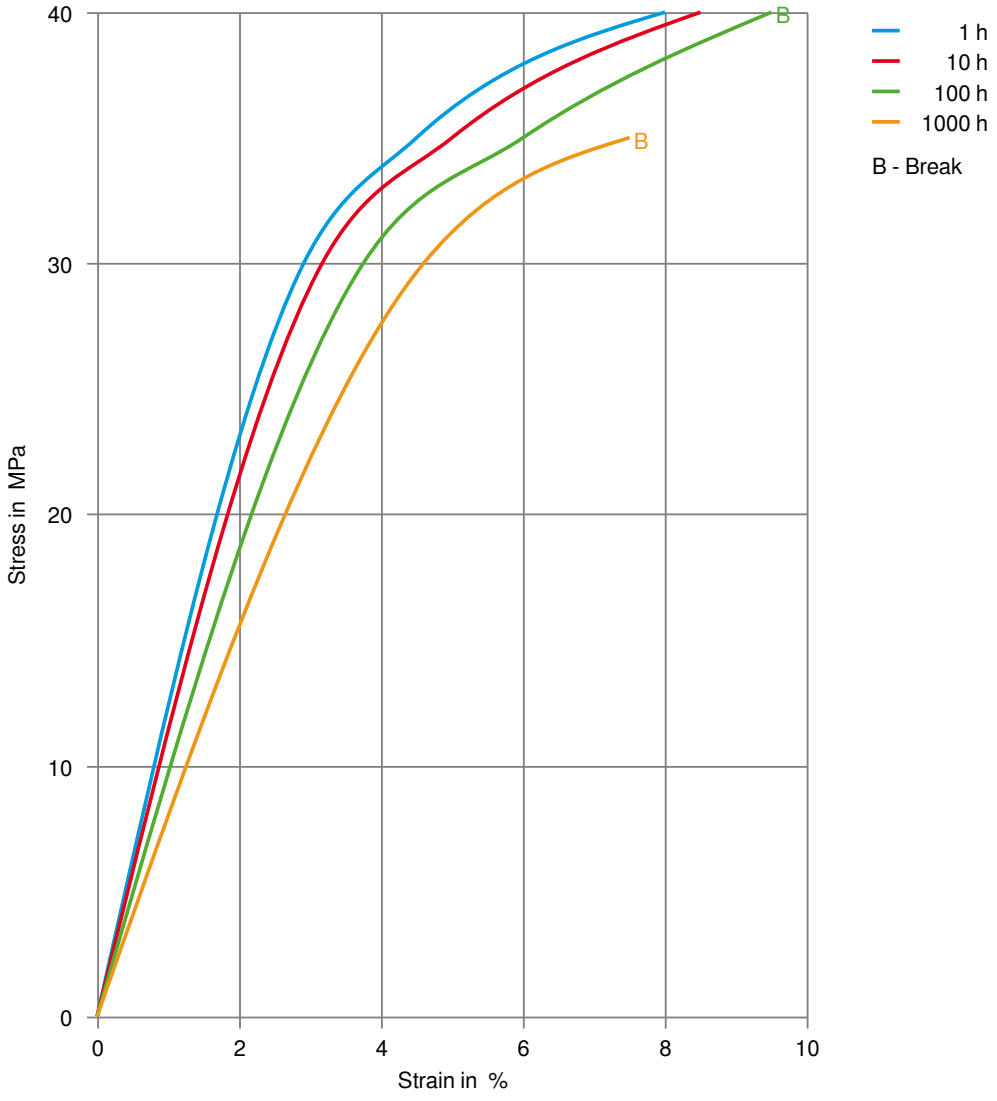


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Stress-strain (isochronous) 180 °C (dry)

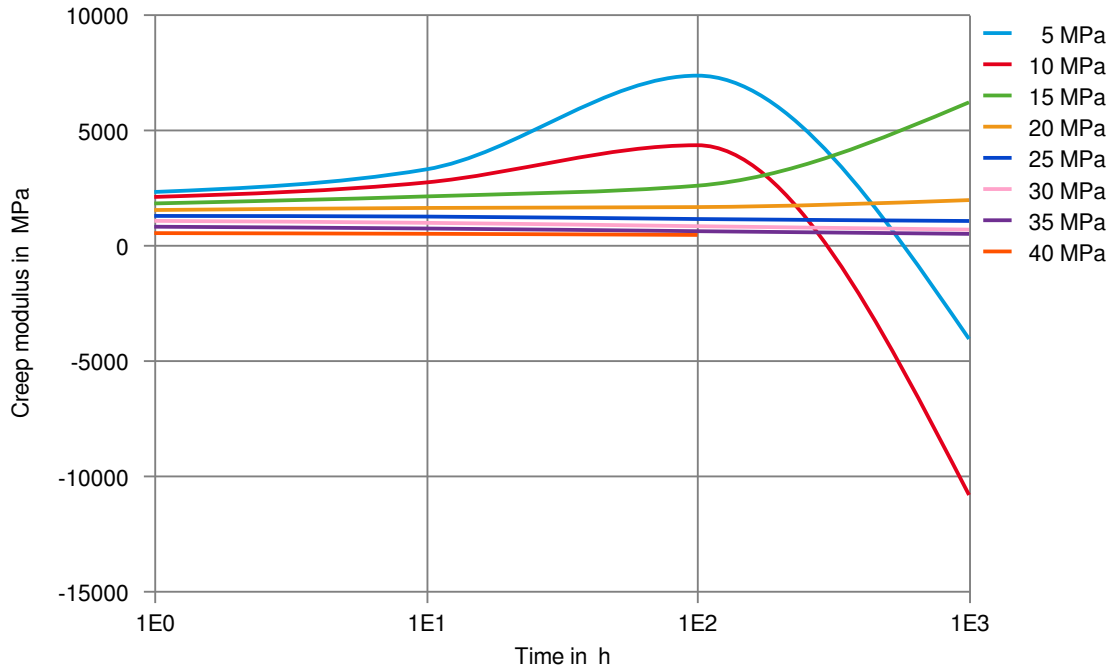


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Creep modulus-time 180 °C (dry)

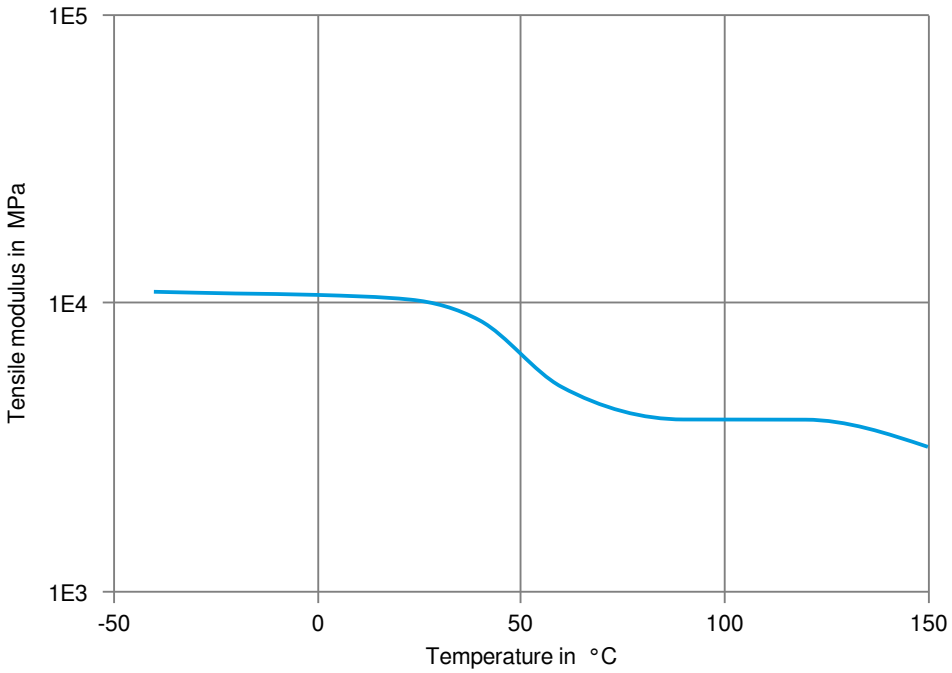


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Tensile modulus-temperature (dry)

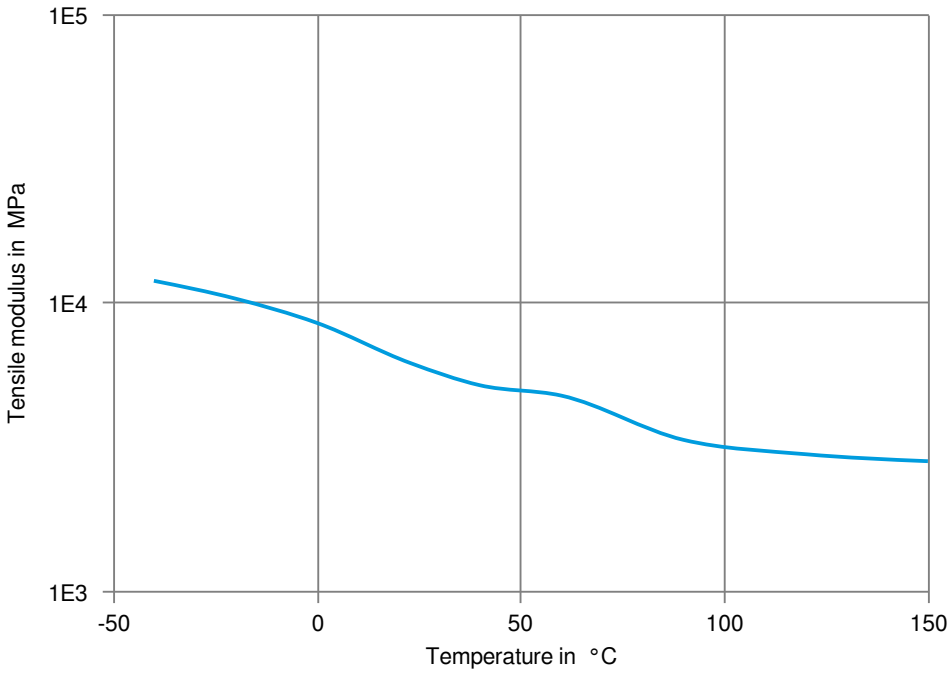


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Tensile modulus-temperature (cond.)

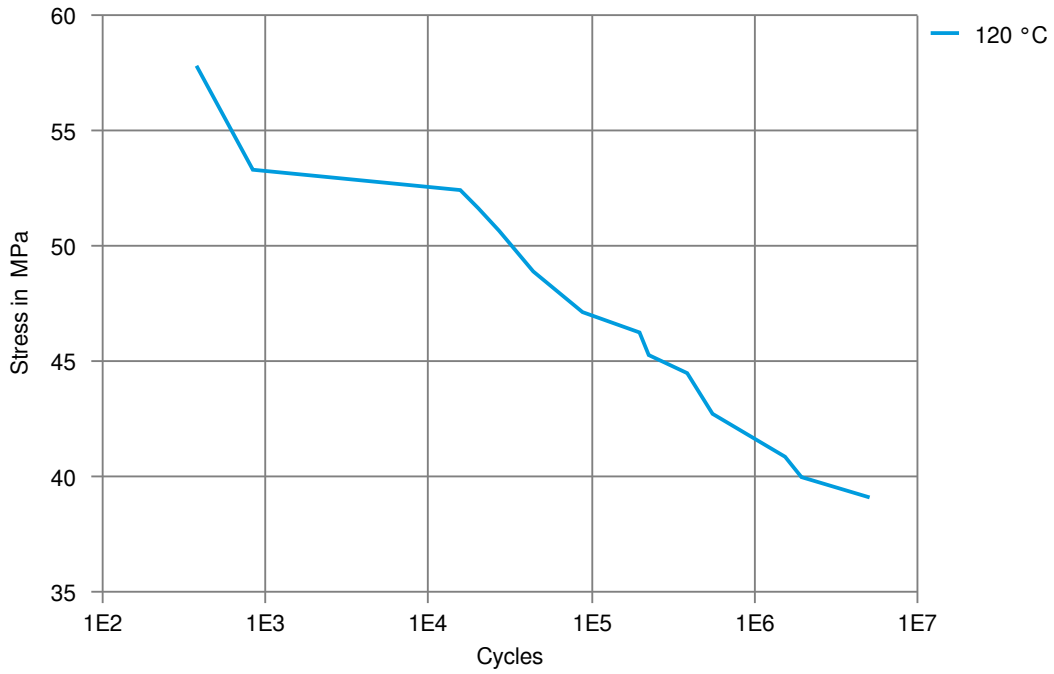


Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

Tensile Fatigue, 10Hz, R=0.1 @ mm (dry)



Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

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
- ✘ Diesel EN 590, 100°C

Celanese
The chemistry inside innovation™

Zytel® 73G30HSL NC010

NYLON RESIN

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
- ✘ Water, 90°C
- ✘ Phenol solution (5% by mass), 23°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).