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Rynite® 530 NC010

THERMOPLASTIC POLYESTER RESIN

Common features of Rynite® thermoplastic polyester include mechanical and physical properties such as excellent balance of strength and stiffness, dimensional stability, creep resistance, heat resistance, high surface gloss and good inherent electrical properties at elevated temperature. It can be processed over a broad temperature range and has excellent flow properties.

Rynite® thermoplastic polyester resins are typically used in demanding applications in the automotive, electrical and electronics, appliances where they successfully replace metals and thermosets, as well as other thermoplastic polymers.

If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-30 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Rynite® 530 NC010 is a 30% glass reinforced modified polyethylene terephthalate resin.

Product information

Resin Identification	PET-GF30	ISO 1043
Part Marking Code	>PET-GF30<	ISO 11469

Rheological properties

Viscosity number	55	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.8	%	ISO 294-4, 2577
Postmoulding shrinkage, normal, 48h at 80°C	0.45	%	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80°C	0.1	%	ISO 294-4

Typical mechanical properties

Tensile modulus	11000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	158	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.5	%	ISO 527-1/-2
Flexural modulus	8950	MPa	ISO 178
Flexural strength	230	MPa	ISO 178
Compressive strength	230	MPa	ISO 604
Tensile creep modulus, 1h	10800	MPa	ISO 899-1
Tensile creep modulus, 1000h	8800	MPa	ISO 899-1
Charpy impact strength, 23°C	60	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	45	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	11	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	11	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -40°C	10	kJ/m^2	ISO 179/1eA
Hardness, Rockwell, M-scale	100		ISO 2039-2
Hardness, Rockwell, R-scale	120		ISO 2039-2
Ball indentation hardness, H 961/30	221	MPa	ISO 2039-1
Poisson's ratio	0.34		

Thermal properties

Melting temperature, 10°C/min	252	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	224	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	245	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	230	°C	ISO 306

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Coeff. of linear therm. expansion, parallel, -40-23°C	22	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	10	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	4	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	67	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	81	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	107	E-6/K	ISO 11359-1/-2
Thermal conductivity, flow	0.29	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	1.3E-7	m^2/s	ISO 22007-4
RTI, electrical, 0.75mm	140	°C	UL 746B
RTI, electrical, 1.5mm	140	°C	UL 746B
RTI, electrical, 3.0mm	140	°C	UL 746B
RTI, electrical, 6mm	140	°C	UL 746B
RTI, impact, 0.75mm	140	°C	UL 746B
RTI, impact, 1.5mm	140	°C	UL 746B
RTI, impact, 3.0mm	140	°C	UL 746B
RTI, impact, 6mm	140	°C	UL 746B
RTI, strength, 0.75mm	140	°C	UL 746B
RTI, strength, 1.5mm	140	°C	UL 746B
RTI, strength, 3.0mm	140	°C	UL 746B
RTI, strength, 6mm	140	°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	20	%	ISO 4589-1/-2
Glow Wire Flammability Index, 2.0mm	750	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	750	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 2.0mm	825	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	825	°C	IEC 60695-2-13
Glow Wire Temperature, No Flame, 1mm	750	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 1.5mm	750	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 2mm	750	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 3mm	825	°C	IEC 60335-1
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	38	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	4.2		IEC 62631-2-1
Relative permittivity, 1MHz	3.8		IEC 62631-2-1
Dissipation factor, 100Hz	130	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	70	E-4	IEC 62631-2-1
Volume resistivity	1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	1E14	Ohm	IEC 62631-3-2

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Electric strength	32	kV/mm	IEC 60243-1
Comparative tracking index	250		IEC 60112
Comparative tracking index, 23 °C	2	PLC	UL 746A

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.7	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.05	%	Sim. to ISO 62
Density	1560	kg/m³	ISO 1183

VDA Properties

Emission of organic compounds	16	µgC/g	VDA 277
Odour	3	class	VDA 270
Fogging, G-value (condensate)	0	mg	ISO 6452

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.02[1]	%
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	110	°C
Min. mould temperature	95	°C
Max. mould temperature	125[2]	°C
Hold pressure range	≥80	MPa
Hold pressure time	4	s/mm
Back pressure	As low as possible	MPa
Ejection temperature	200	°C

[1]: At levels above 0.02%, strength and toughness will decrease, even though parts may not exhibit surface defects.

[2]: (6mm - 1mm thickness)

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent

Additional information

Injection molding	When lower mold temperatures are used, the initial warpage and shrinkage will be lower, but the surface appearance will be poorer and the dimensional change may be greater when parts are subsequently heated.

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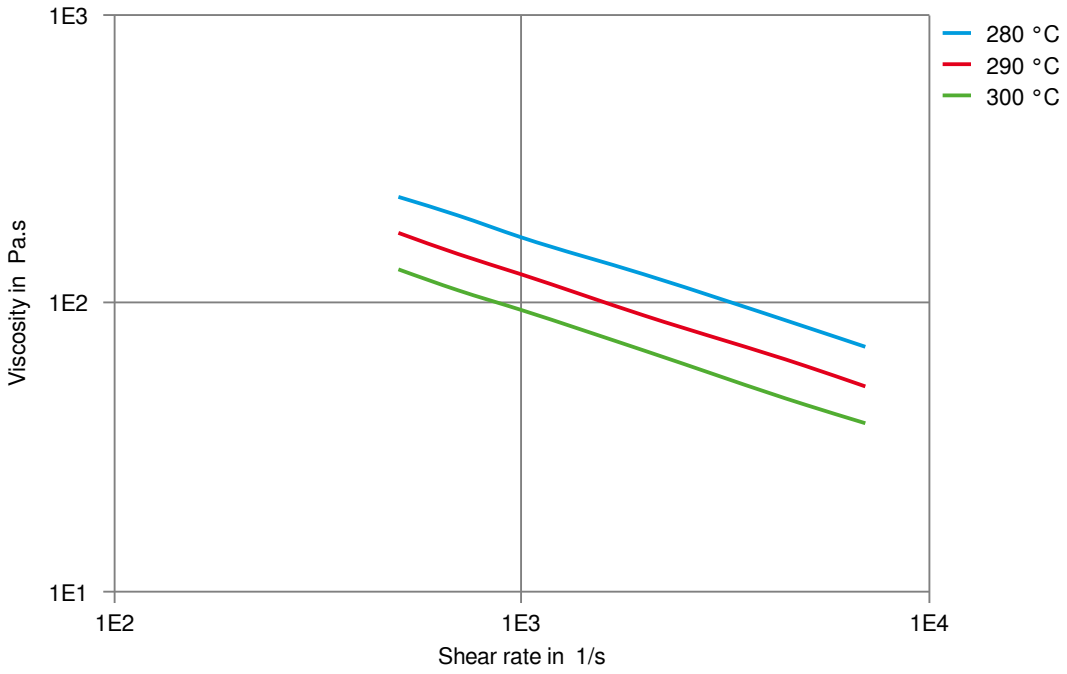
Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
BMW	GS93016-PET-GF30	
Stellantis - Chrysler	MS.50103 / CPN-3009	Natural
Stellantis - Chrysler	MS.50103 / CPN-3692	Natural

Viscosity-shear rate



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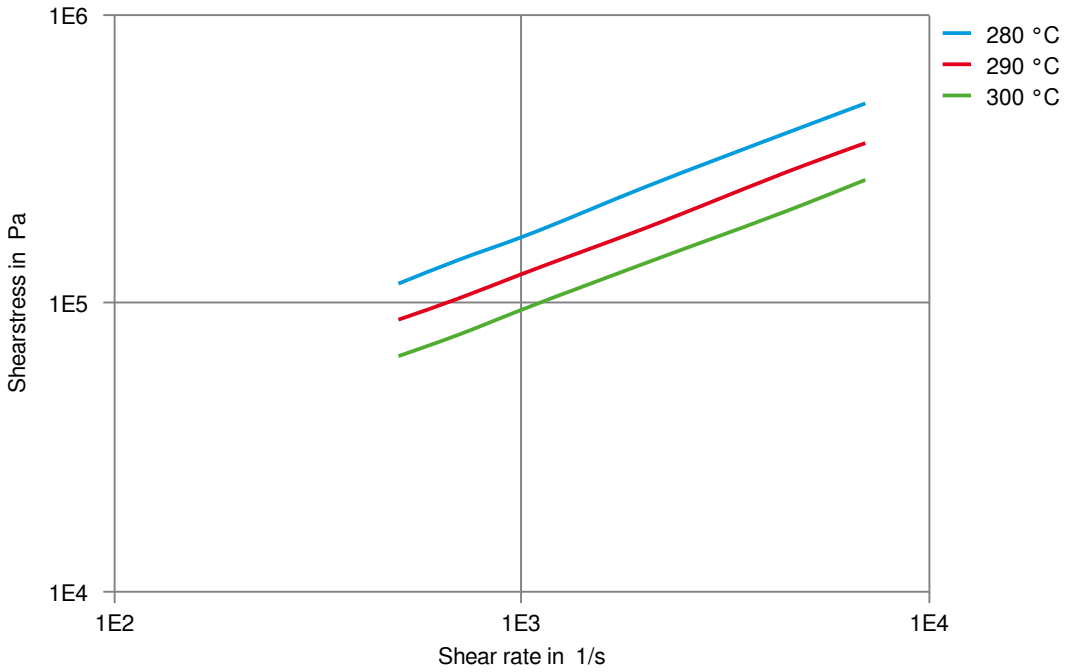
Shearstress-shear rate



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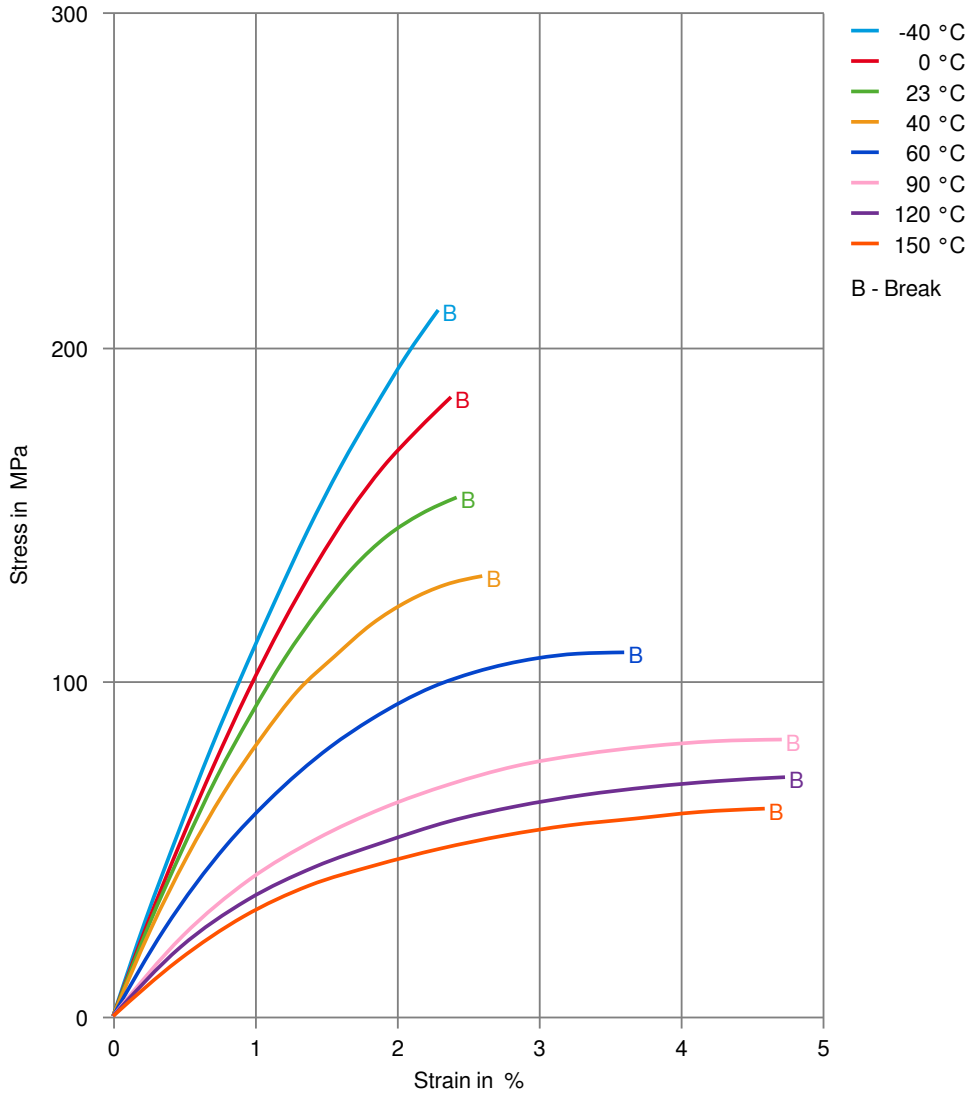
Stress-strain



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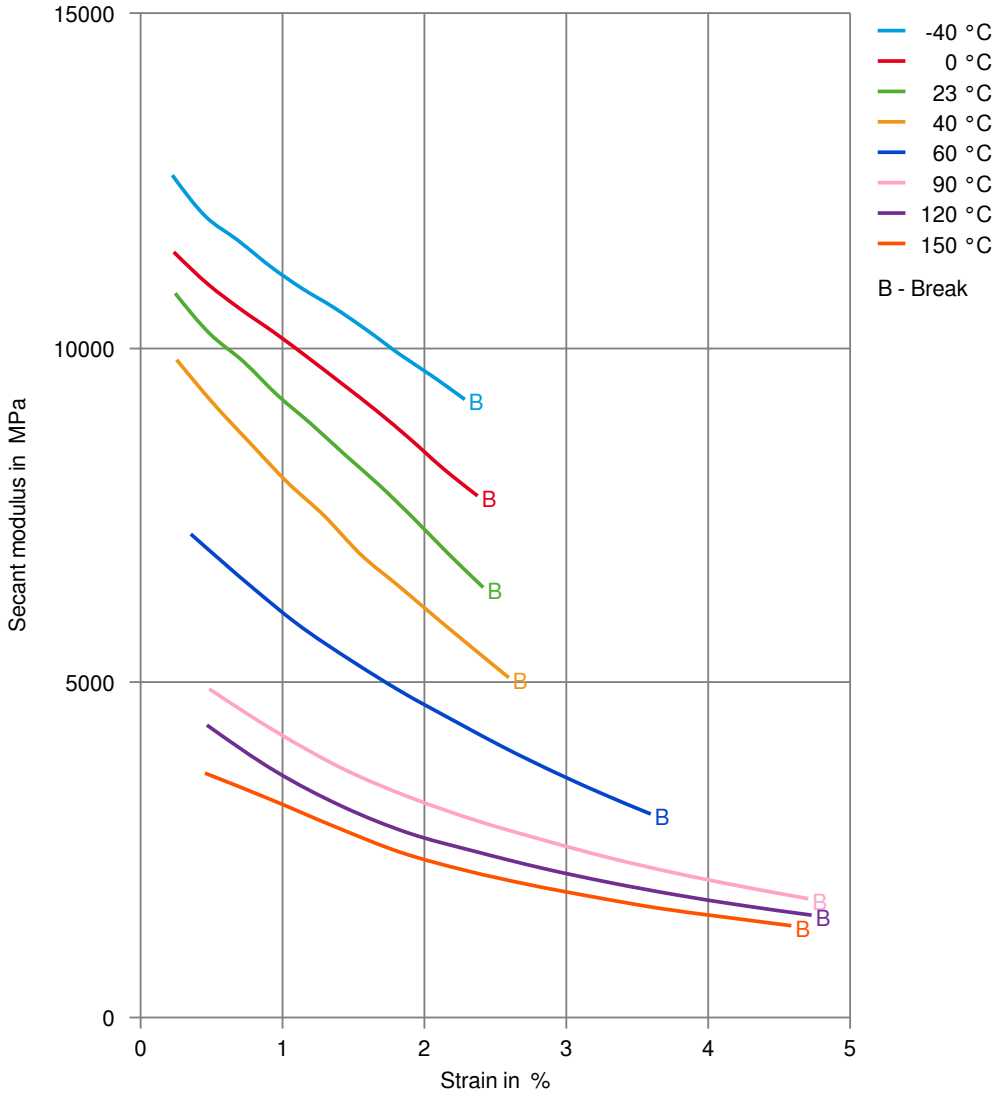
Secant modulus-strain



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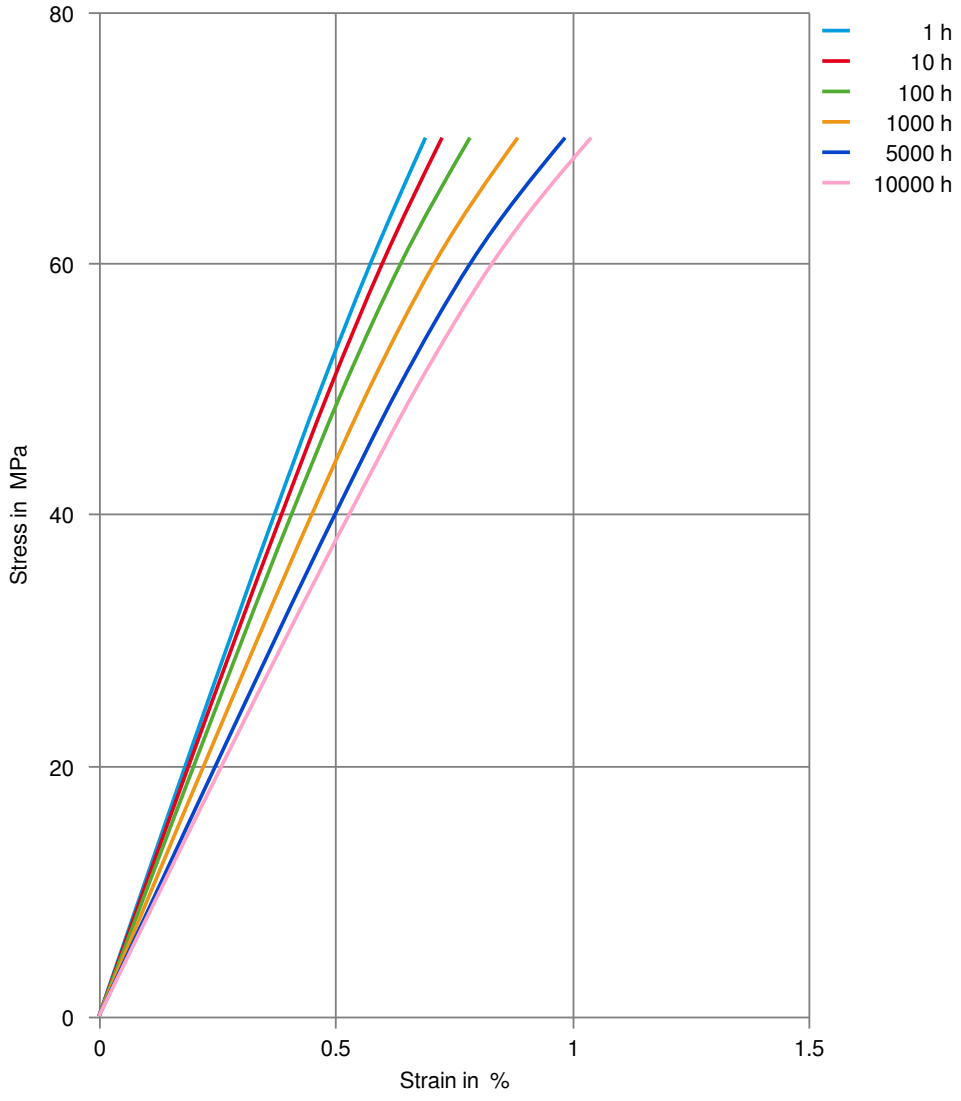
Stress-strain (isochronous) 23 °C



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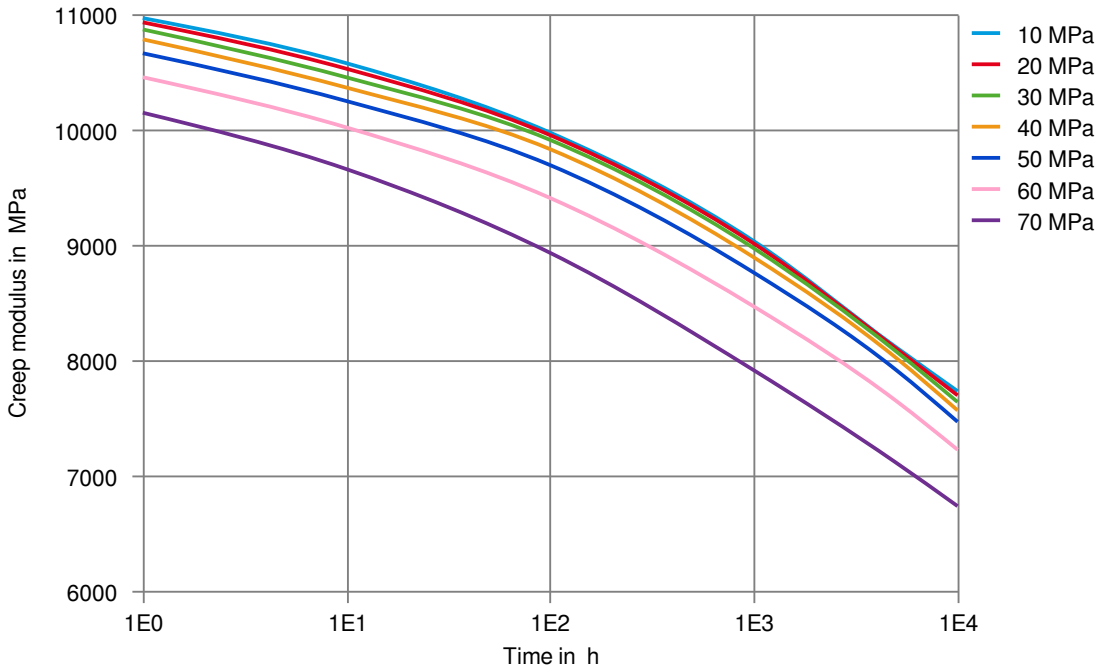
Creep modulus-time 23 °C



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Spec. enthalpy/mass-temp. (DSC)