



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, DuPont recommends, 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, 1157, 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
Stress at break	158 MPa	ISO 527-1/-2
Strain at break	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



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THERMOPLASTIC POLYESTER RESIN

Poisson's ratio 0.34 -

Thermal properties

Melting temperature, 10°C/min	252 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	224 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	245 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	230 °C	ISO 306
CLTE, Parallel, -40-23°C	22 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	10 E-6/K	ISO 11359-1/-2
CLTE, Parallel, 55-160°C	4 E-6/K	ISO 11359-1/-2
CLTE, Normal, -40-23°C	67 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 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 solid	0.29 W/(m K)	
Eff. thermal diffusivity	1.3E-7 m ² /s	
RTI, electrical, 0.75mm	140 °C	UL 746B
RTI, electrical, 1.5mm	140 °C	UL 746B
RTI, electrical, 3mm	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, 3mm	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, 3mm	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, 2mm	750 °C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	750 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 2mm	825 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3mm	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



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

Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.7 %	Sim. to ISO 62
Density	1560 kg/m ³	ISO 1183
Water Absorption, Immersion 24h	0.05 %	Sim. to ISO 62

VDA Properties

Emission of organic compounds	16 µgC/g	VDA 277
Odour	3 class	VDA 270
Fogging, G-value (condensate)	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	285 °C
Min. melt temperature	280 °C
Max. melt temperature	300 °C
Max. screw tangential speed	0.2 m/s
Mold Temperature Optimum	130 °C
Min. mould temperature	120 °C
Max. mould temperature	140 ^[2] °C
Hold pressure range	≥80 MPa
Hold pressure time	4 s/mm
Back pressure	As low as possible MPa
Ejection temperature	170 °C

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

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



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Characteristics

Additives

Release agent

Additional Information

Injection molding

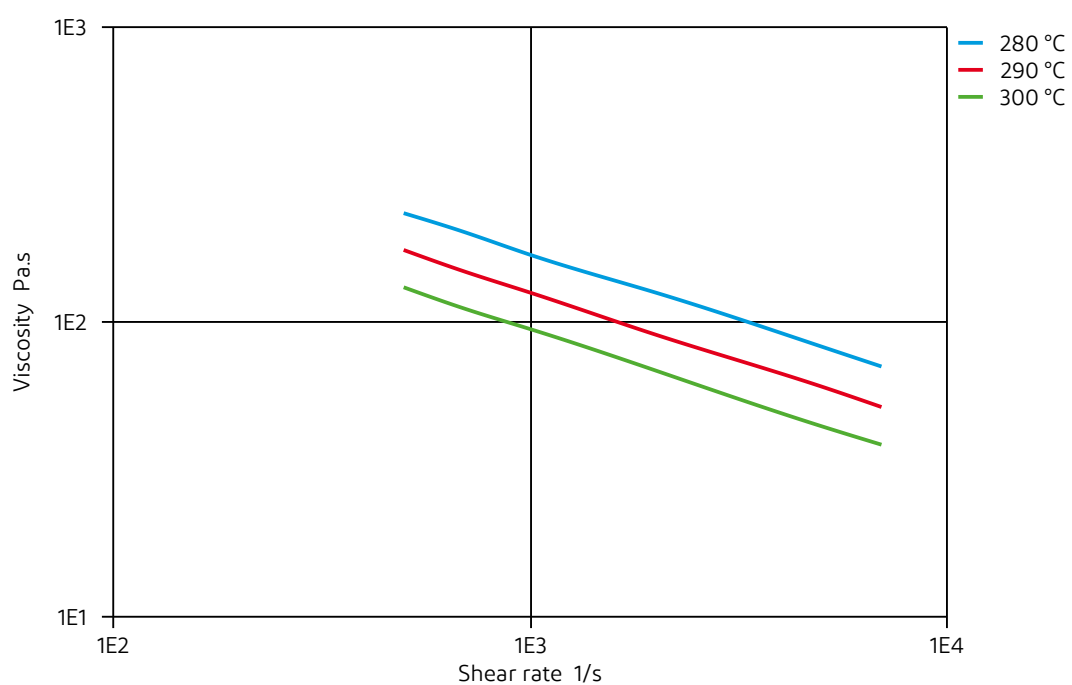
When lower mold temperatures are used, the initial warpage and shrinkage will be lower, but the surface appearance will be poorer and the dimensional change may be greater when parts are subsequently heated.



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Viscosity-shear rate

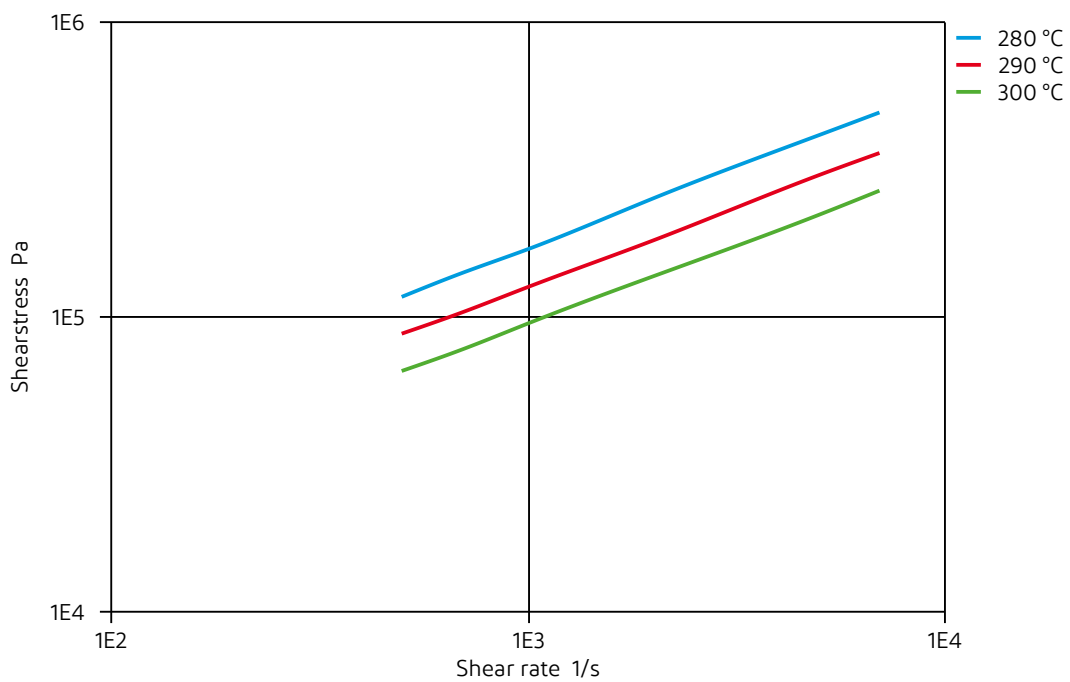




Rynite[®] 530 NC010

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Shearstress-shear rate

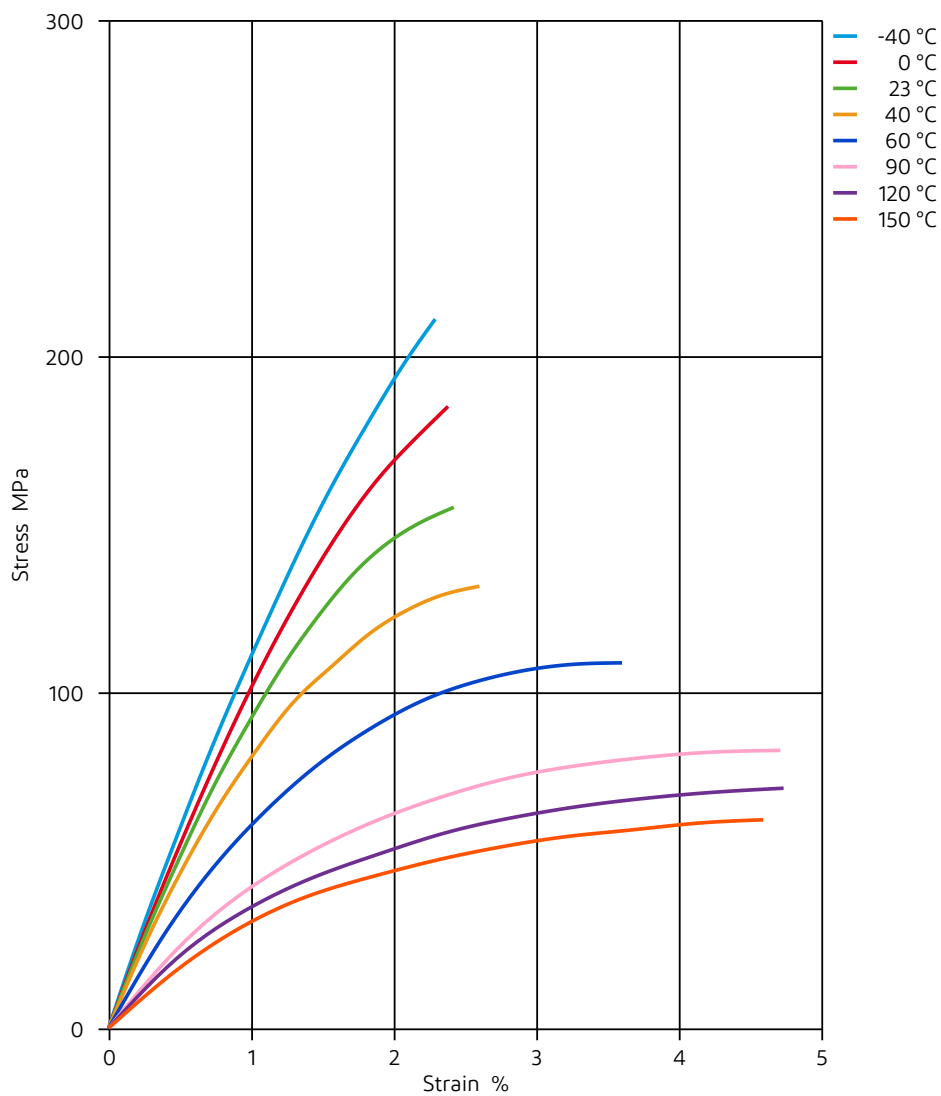




Rynite[®] 530 NC010

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Stress-strain

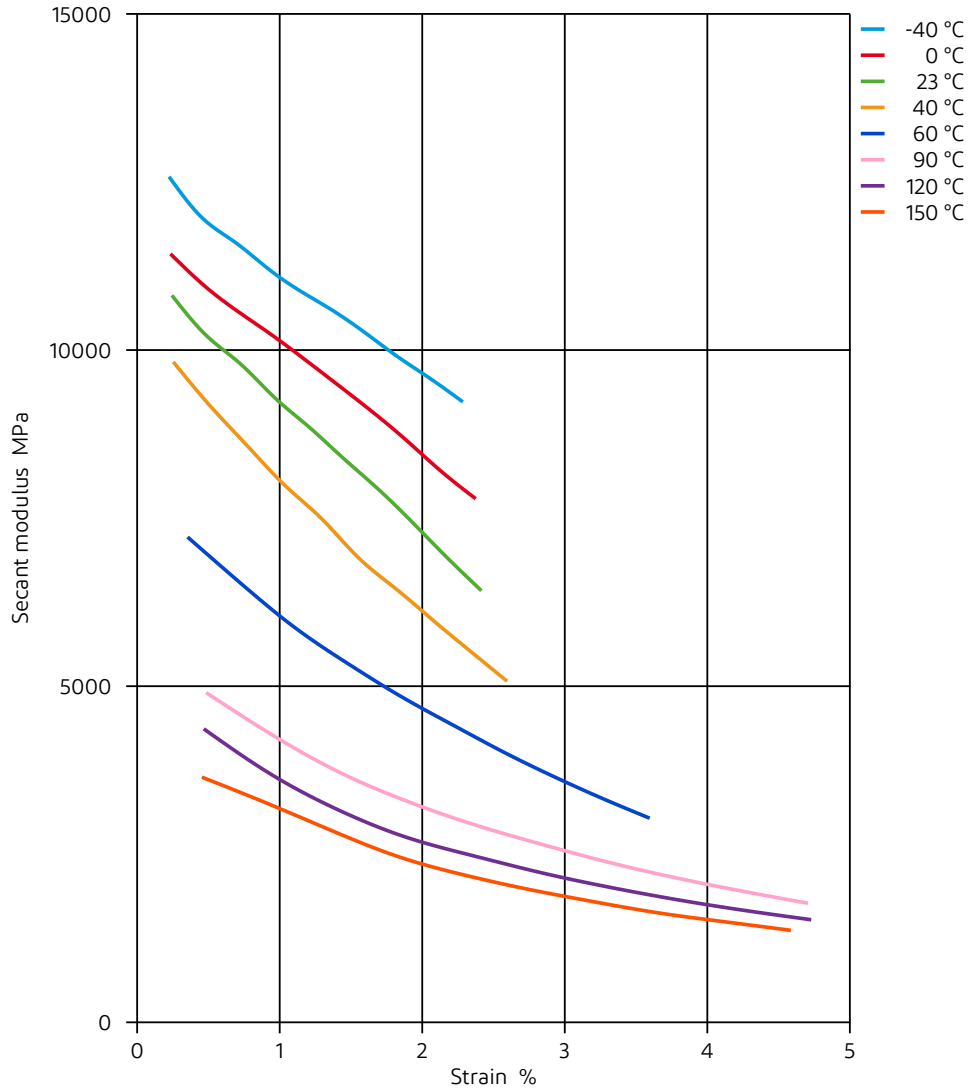




Rynite[®] 530 NC010

THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain

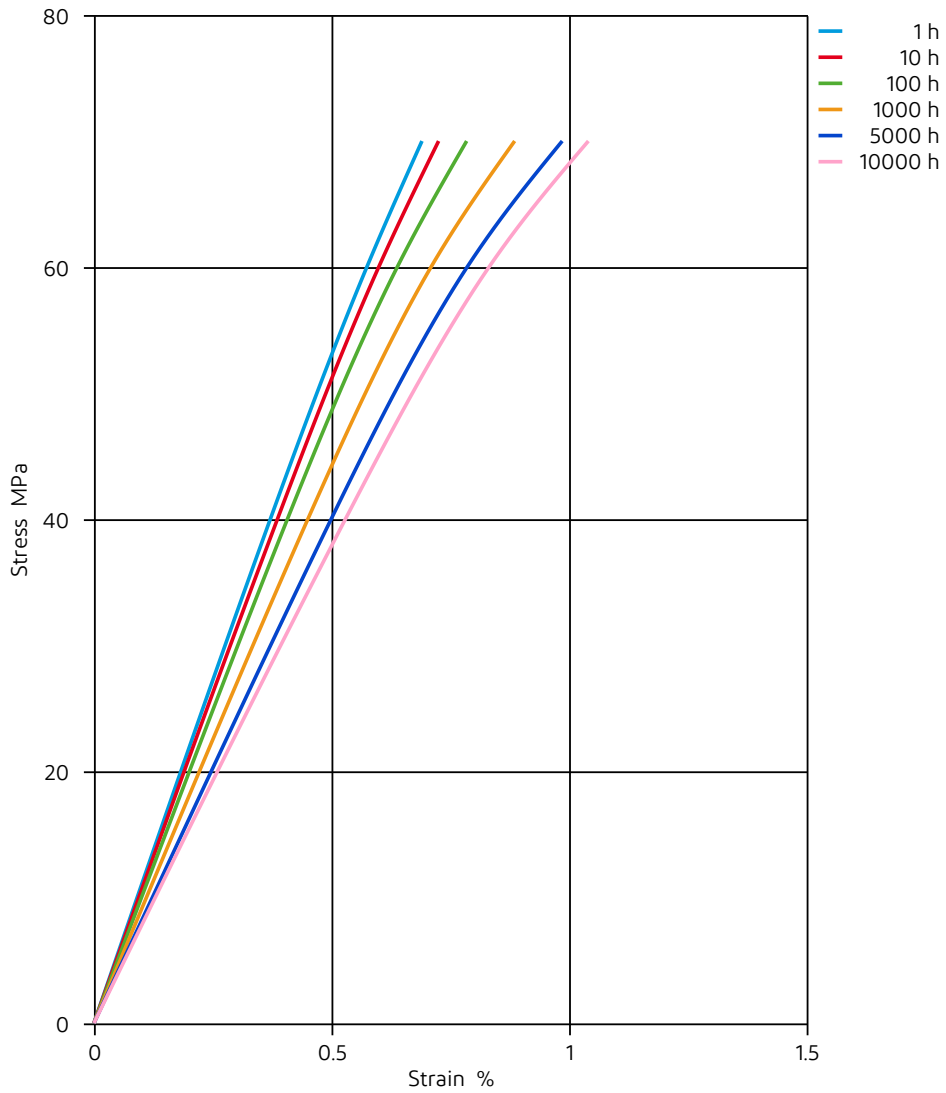




Rynite[®] 530 NC010

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Stress-strain (isochronous) 23°C

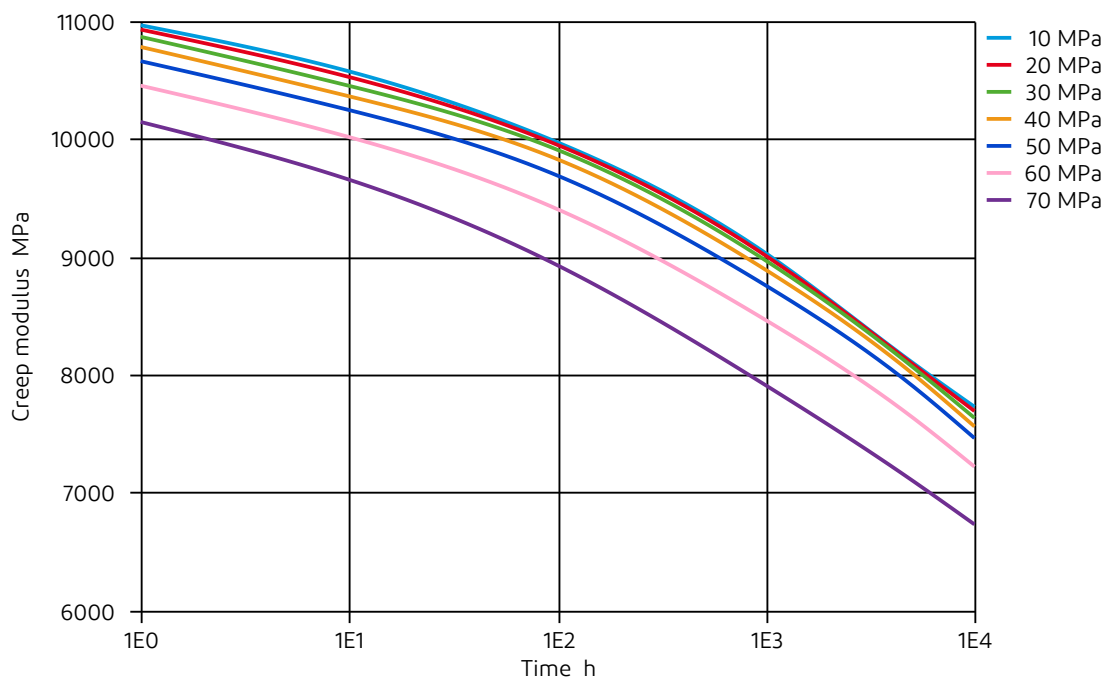




Rynite[®] 530 NC010

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Creep modulus-time 23°C



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