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Rynite® 530HTE 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.

The good melt stability of Rynite® thermoplastic polyester normally enables the recycling of properly handled production waste.If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-22 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Rynite® 530HTE NC010 is a 30% glass reinforced modified polyethylene terephthalate resin with excellent high temperature dielectric properties.

Product information

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

Rheological properties

Melt mass-flow rate	9	g/10min	ISO 1133
Melt mass-flow rate, Temperature	280	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	0.1	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	11000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	160	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.9	%	ISO 527-1/-2
Charpy impact strength, 23°C	38	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	10.5	kJ/m²	ISO 179/1eA
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	230	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	21	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	21	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	18	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	56	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	63	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	112	E-6/K	ISO 11359-1/-2

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Thermal conductivity of melt	0.29	W/(m K)	ISO 22007-2
Specific heat capacity of melt	1500	J/(kg K)	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, impact, 0.75mm	140	°C	UL 746B
RTI, impact, 1.5mm	140	°C	UL 746B
RTI, impact, 3.0mm	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

Flammability

Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.85	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Glow Wire Flammability Index, 3.0mm	800	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 3.0mm	800	°C	IEC 60695-2-13
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	36	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	4.2		IEC 62631-2-1
Relative permittivity, 1MHz	3.9		IEC 62631-2-1
Dissipation factor, 100Hz	14	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	146	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	38	kV/mm	IEC 60243-1
Comparative tracking index	200		IEC 60112

Physical/Other properties

Density	1560	kg/m³	ISO 1183
Density of melt	1360	kg/m³	

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
Screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	140	°C
Min. mould temperature	120	°C
Max. mould temperature	140[2]	°C
Hold pressure range	≥80	MPa

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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)

Characteristics

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

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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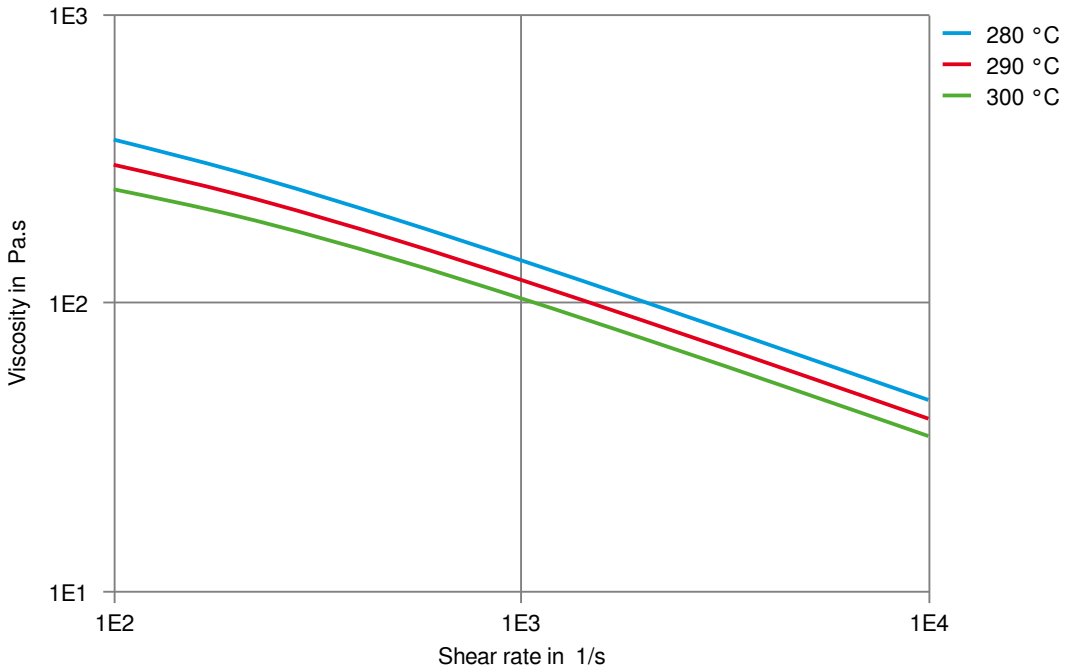
Viscosity-shear rate



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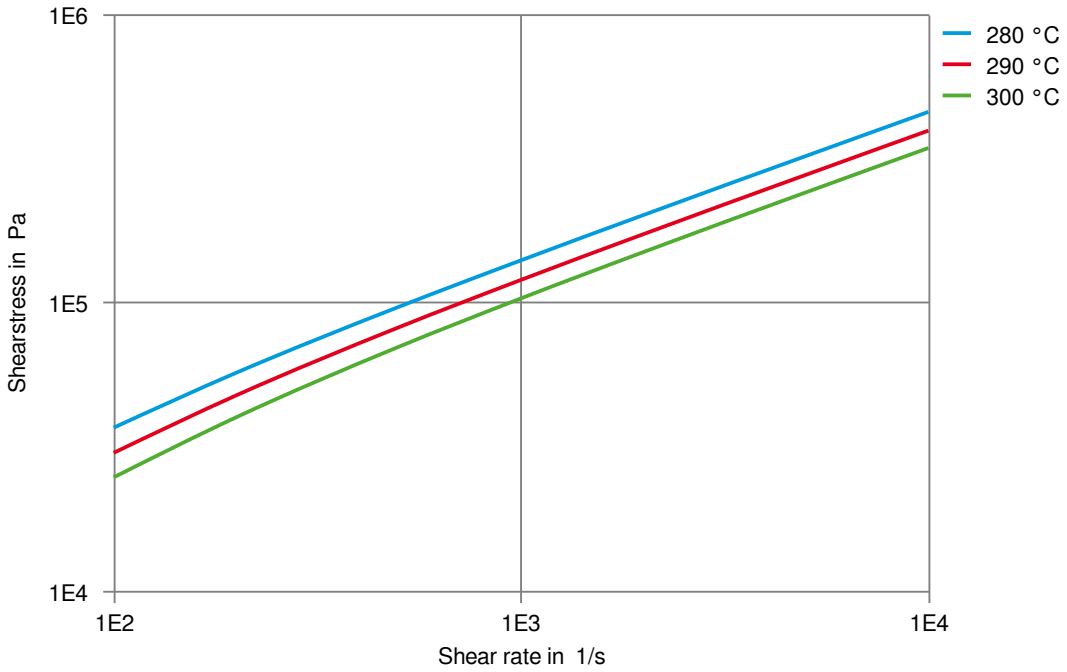
Shearstress-shear rate



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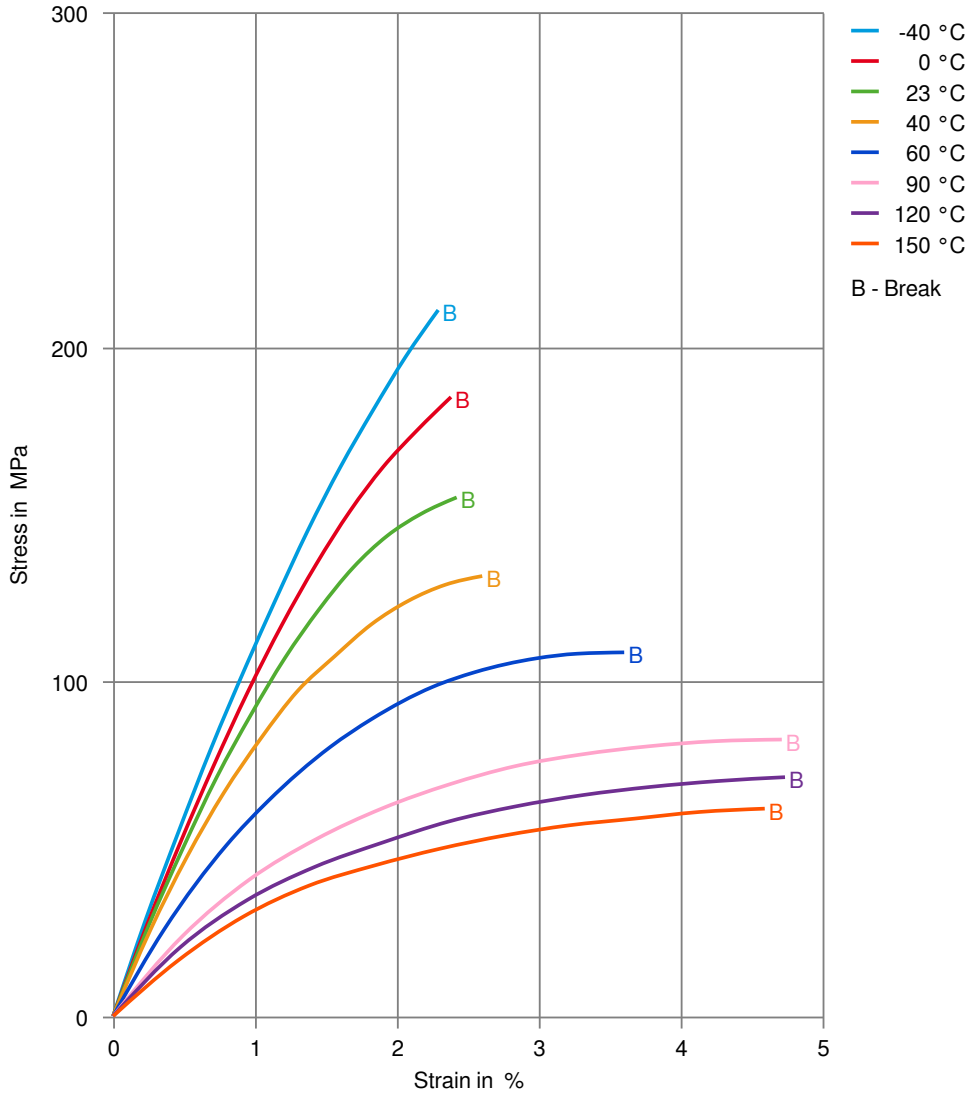
Stress-strain
(measured on Rynite® 530 NC010)



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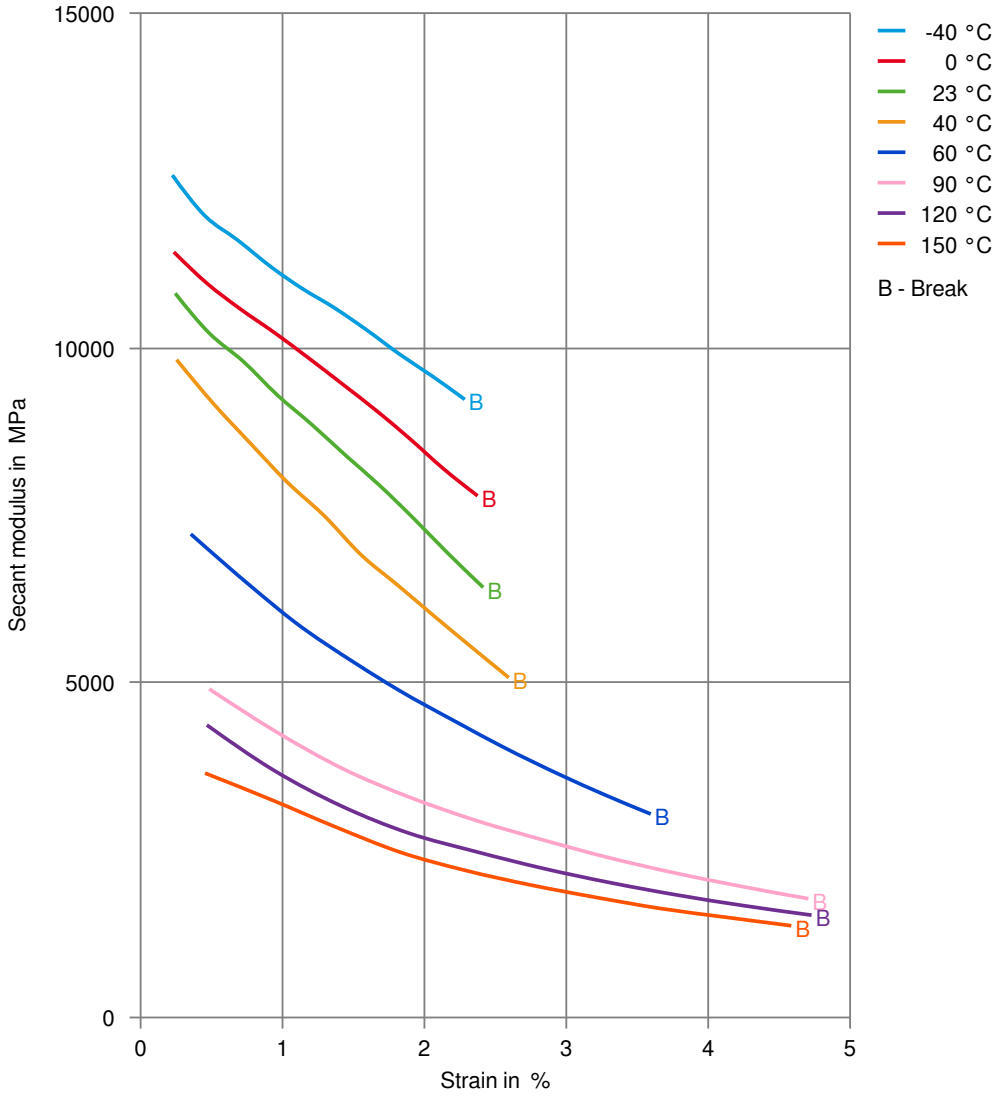
Secant modulus-strain
(measured on Rynite® 530 NC010)



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