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Rynite® FR530 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.

Rynite® FR530 NC010 is a 30% glass reinforced, flame retardant, modified polyethylene terephthalate resin.

Product information

Resin Identification	PET-GF30FR(17)	ISO 1043
Part Marking Code	>PET-GF30FR(17)<	ISO 11469

Rheological properties

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	0.2	%	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80°C	0	%	ISO 294-4

Typical mechanical properties

Tensile modulus	11500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	135	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2	%	ISO 527-1/-2
Flexural modulus	10500	MPa	ISO 178
Compressive strength	200	MPa	ISO 604
Tensile creep modulus, 1h	11200	MPa	ISO 899-1
Tensile creep modulus, 1000h	9700	MPa	ISO 899-1
Charpy impact strength, 23°C	40	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	40	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	10	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	9	kJ/m²	ISO 179/1eA
Poisson's ratio	0.33		

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	225	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	243	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	220	°C	ISO 306
Ball pressure test	235	°C	IEC 60695-10-2
Coeff. of linear therm. expansion, parallel, -40-23°C	19	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	22	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	68	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	96	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal, 55-160°C	125	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.24	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	1.1E-7	m²/s	ISO 22007-4
Specific heat capacity of melt	1720	J/(kg K)	ISO 22007-4
RTI, electrical, 0.4mm	155	°C	UL 746B
RTI, electrical, 0.75mm	155	°C	UL 746B
RTI, electrical, 1.5mm	155	°C	UL 746B
RTI, electrical, 3.0mm	155	°C	UL 746B
RTI, impact, 0.4mm	155	°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, 0.4mm	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

Flammability

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	0.35	mm	IEC 60695-11-10
UL recognition	yes		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	33	%	ISO 4589-1/-2
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	800	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.0mm	800	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	800	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 2.0mm	850	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	925	°C	IEC 60695-2-13
Glow Wire Temperature, No Flame, 1mm	800	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 2mm	775	°C	IEC 60335-1
FMVSS Class	DNI		ISO 3795 (FMVSS 302)
Railway classification	R23		EN 45545-2
Railway classification rating	HL1		EN 45545-2

Electrical properties

Relative permittivity, 100Hz	4.8		IEC 62631-2-1
Relative permittivity, 1MHz	4.3		IEC 62631-2-1
Dissipation factor, 100Hz	70	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	126	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1

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Surface resistivity	1E14	Ohm	IEC 62631-3-2
Electric strength	39	kV/mm	IEC 60243-1
Comparative tracking index	200		IEC 60112
Comparative tracking index, 23 °C	2	PLC	UL 746A

Physical/Other properties

Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Water absorption, 2mm	0.75	%	Sim. to ISO 62
Density	1680	kg/m³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.02[1]	%
Melt Temperature Optimum	280	°C
Min. melt temperature	270	°C
Max. melt temperature	290	°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	195	°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, Flame retardant
Special characteristics	Flame retardant

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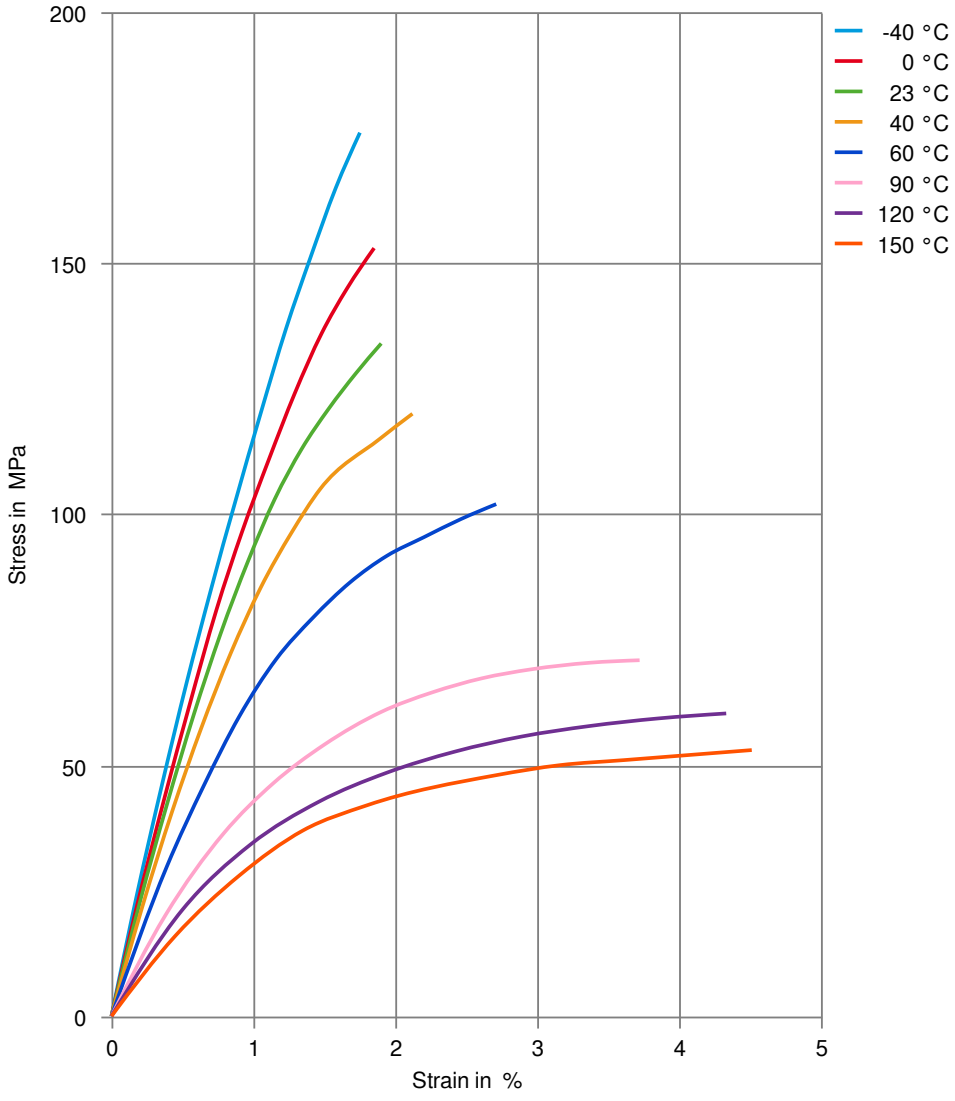
Stress-strain



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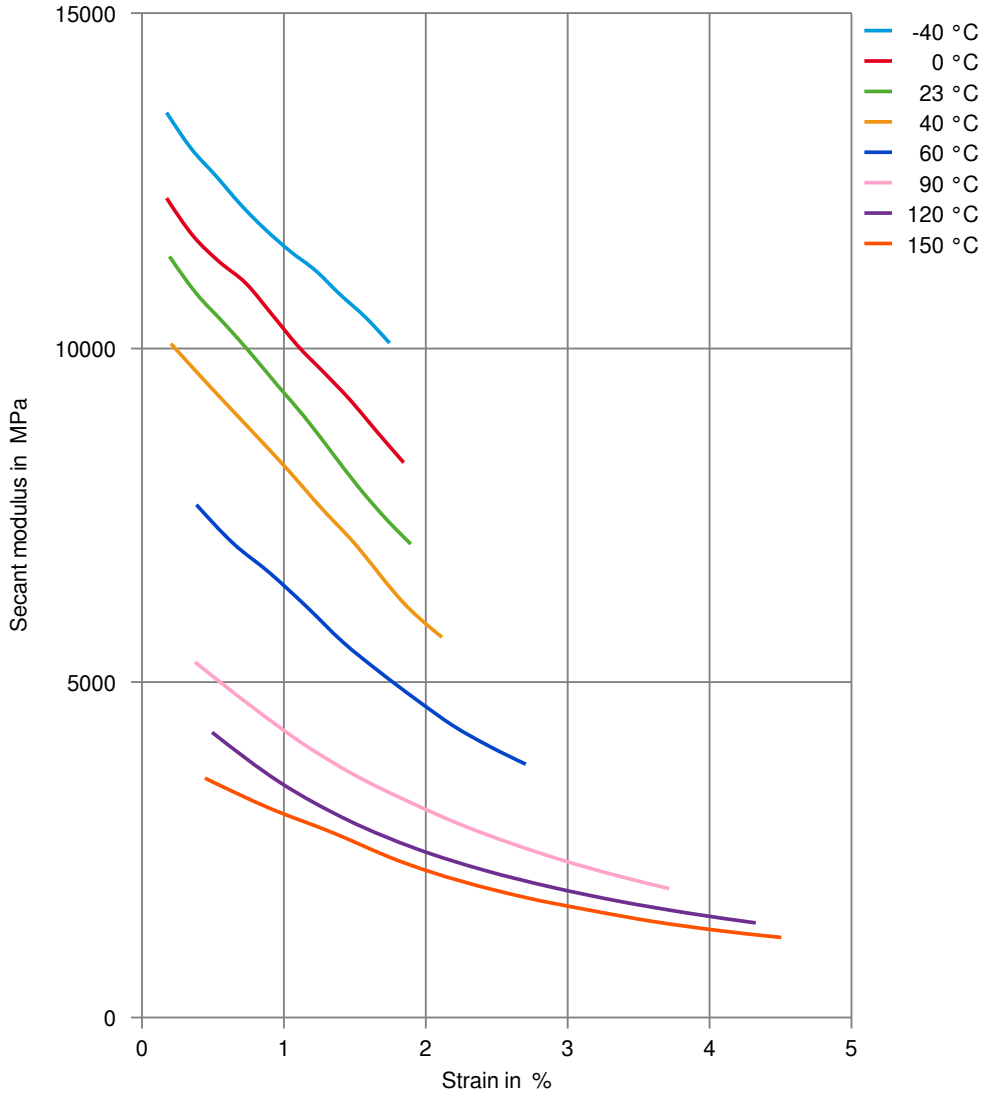
Secant modulus-strain



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