

Rynite® 530 BK503

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® 530 BK503 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

Moulding shrinkage, parallel	0.3 %	ISO 294-4, 2577
Moulding shrinkage, normal	0.9 %	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	10200 MPa	ISO 527-1/-2
Stress at break, 5mm/min	150 MPa	ISO 527-1/-2
Strain at break, 5mm/min	2.1 %	ISO 527-1/-2
Flexural Modulus	8940 MPa	ISO 178
Flexural Strength	210 MPa	ISO 178
Compressive strength	230 MPa	ISO 604
Charpy impact strength, 23°C	52 kJ/m ²	ISO 179/1eU
Charpy impact strength, -40°C	45 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	9.5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	8.5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -40°C	8 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	9.5 kJ/m ²	ISO 180/1A
Izod notched impact strength, -40°C	8.5 kJ/m ²	ISO 180/1A
Izod impact strength, 23°C	45 kJ/m ²	ISO 180/1U
Izod impact strength, -40°C	35 kJ/m ²	ISO 180/1U
Hardness, Rockwell, R-scale	120	ISO 2039-2
Ball indentation hardness, H 961/30	221 MPa	ISO 2039-1
Poisson's ratio	0.34	



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Thermal properties

Melting temperature, 10°C/min	250 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	221 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	244 °C	ISO 75-1/-2
Thermal conductivity	0.29 W/(m K)	ISO 22007-2
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	UL 94
Thickness tested	1.5 mm	UL 94
UL recognition	yes	UL 94
Burning Behav. at thickness h	HB class	UL 94
Thickness tested	0.81 mm	UL 94
UL recognition	yes	UL 94
Thickness tested	0.75 mm	UL 94
UL recognition	yes	UL 94
Glow Wire Flammability Index, 2mm	800 °C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	900 °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
FMVSS Class	B	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	38 mm/min	ISO 3795 (FMVSS 302)



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Electrical properties

Relative permittivity, 100Hz	4.5	IEC 62631-2-1
Relative permittivity, 1MHz	4.2	IEC 62631-2-1
Dissipation factor, 100Hz	310 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	152 E-4	IEC 62631-2-1
Surface resistivity	>1E15 Ohm	IEC 62631-3-2
Electric strength	32 kV/mm	IEC 60243-1
Comparative tracking index	250	IEC 60112
Electric Strength, Short Time, 23°C, 2mm	22 kV/mm	IEC 60243-1

Other properties

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)	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	Internal
Min. melt temperature	280 °C	
Max. melt temperature	300 °C	
Screw tangential speed	≤0.2 m/s	
Mold Temperature Optimum	120 °C	
Min. mould temperature	110 °C	
Max. mould temperature	130 ^[2] °C	
Hold pressure range	≥80 MPa	
Hold pressure time	4 s/mm	
Back pressure	As low as possible	
Ejection temperature	170 °C	Internal

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

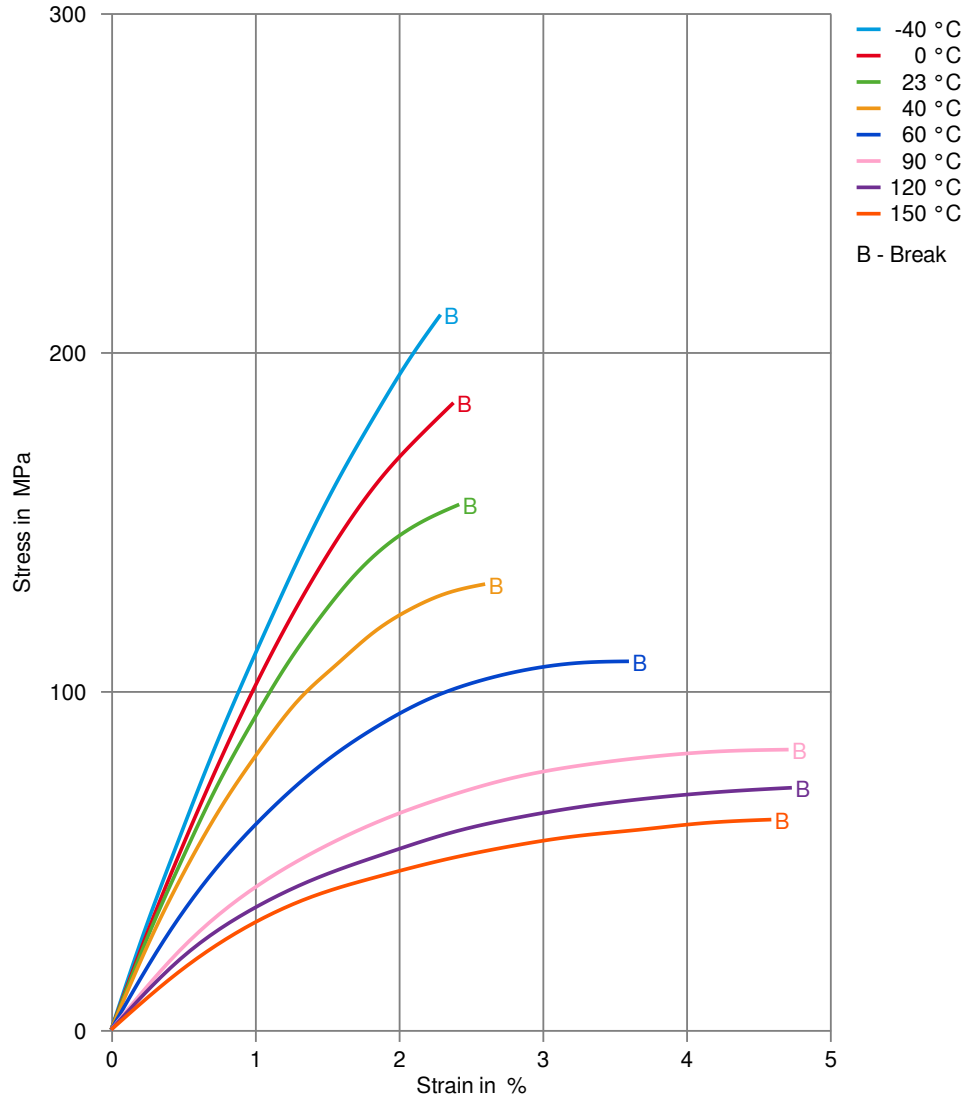
[2]: (6mm - 1mm thickness)



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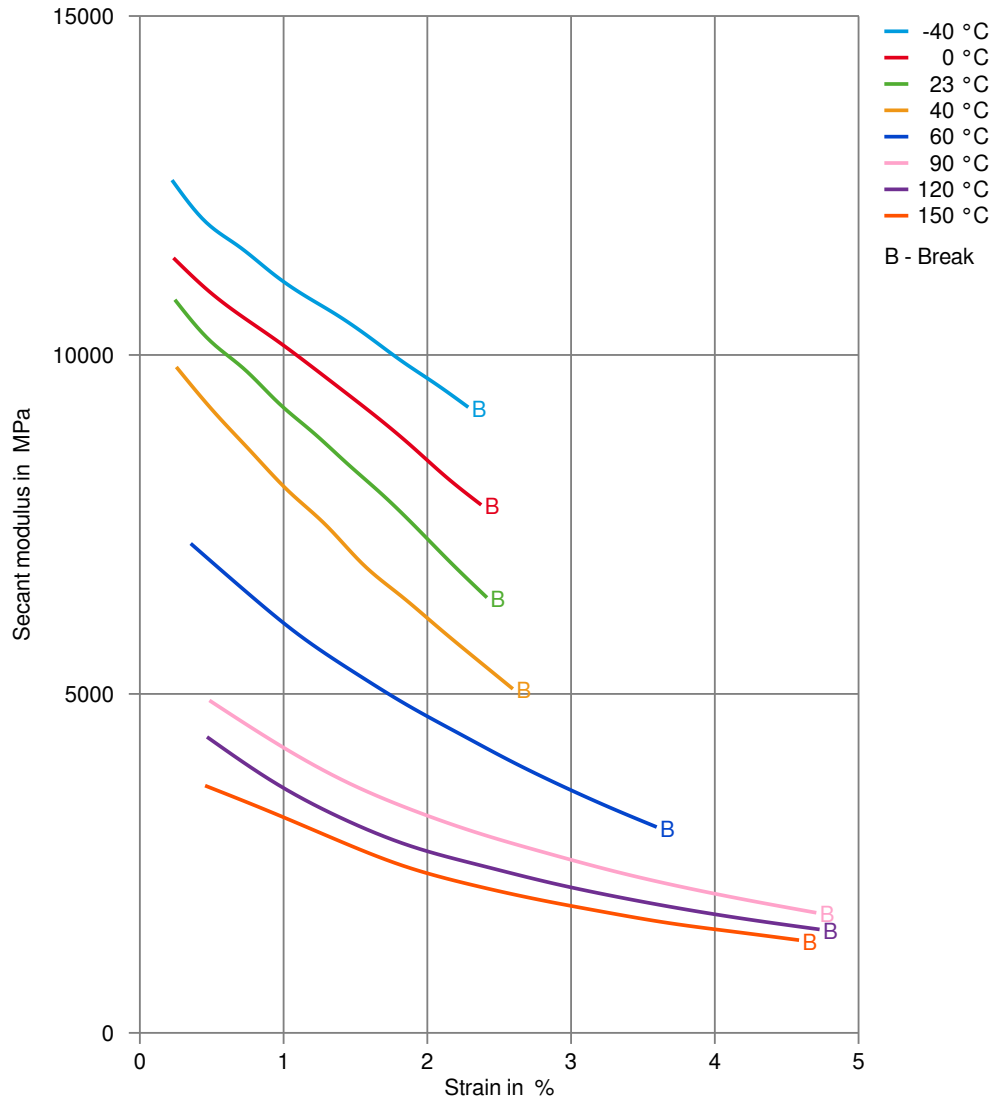
Stress-strain
(measured on Rynite® 530 NC010)



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



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Chemical Media Resistance

Mineral oils

- ✗ SAE 80/90 hypoid-gear oil, 130°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).

