

# Rynite® FR515 BK507

## 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® FR515 BK507 is a 15% glass reinforced, flame retardant modified polyethylene terephthalate resin.

### Product information

Resin Identification	PET- GF15FR(17)	ISO 1043
Part Marking Code	>PET-GF15FR(17)<	ISO 11469

### Rheological properties

Moulding shrinkage, parallel	0.3 <sup>[DS]</sup> %	ISO 294-4, 2577
Moulding shrinkage, normal	0.8 <sup>[DS]</sup> %	ISO 294-4, 2577

[DS]: Derived from similar grade

### Typical mechanical properties

Tensile modulus	6140 MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	100 MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.2 %	ISO 527-1/-2
Flexural modulus	6000 MPa	ISO 178
Flexural strength	160 MPa	ISO 178
Charpy impact strength, 23°C	32 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -40°C	20 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	6.2 kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -40°C	6 kJ/m <sup>2</sup>	ISO 179/1eA
Poisson's ratio	0.35	

### Thermal properties

Melting temperature, 10°C/min	254 °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	200 °C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	238 °C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	33 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	29 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	19 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	74 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	95 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	125 E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	140 °C	UL 746B
RTI, electrical, 1.5mm	140 °C	UL 746B
RTI, electrical, 3.0mm	140 °C	UL 746B

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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	V-0 class	IEC 60695-11-10
Thickness tested	0.86 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	32 %	ISO 4589-1/-2
Glow Wire Flammability Index, 3.0mm	960 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 3.0mm	900 °C	IEC 60695-2-13
FMVSS Class	DNI	ISO 3795 (FMVSS 302)

### Electrical properties

Relative permittivity, 100Hz	3.6	IEC 62631-2-1
Relative permittivity, 1MHz	3.5	IEC 62631-2-1
Dissipation factor, 100Hz	229 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	123 E-4	IEC 62631-2-1
Volume resistivity	>1E13 Ohm.m	IEC 62631-3-1
Surface resistivity	1E13 Ohm	IEC 62631-3-2
Electric strength	40 kV/mm	IEC 60243-1
Comparative tracking index	225	IEC 60112
Comparative tracking index, 23 °C	3 PLC	UL 746A

### Physical/Other properties

Density	1550 kg/m <sup>3</sup>	ISO 1183
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### Injection

Drying Recommended	yes
Drying Temperature	120 °C
Drying Time, Dehumidified Dryer	4 - 6 h
Processing Moisture Content	≤0.02 <sup>[1]</sup> %
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	102 °C
Min. mould temperature	95 °C
Max. mould temperature	110 <sup>[2]</sup> °C
Hold pressure range	≥80 MPa
Hold pressure time	4 s/mm
Back pressure	As low as possible MPa

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Ejection temperature 202 °C

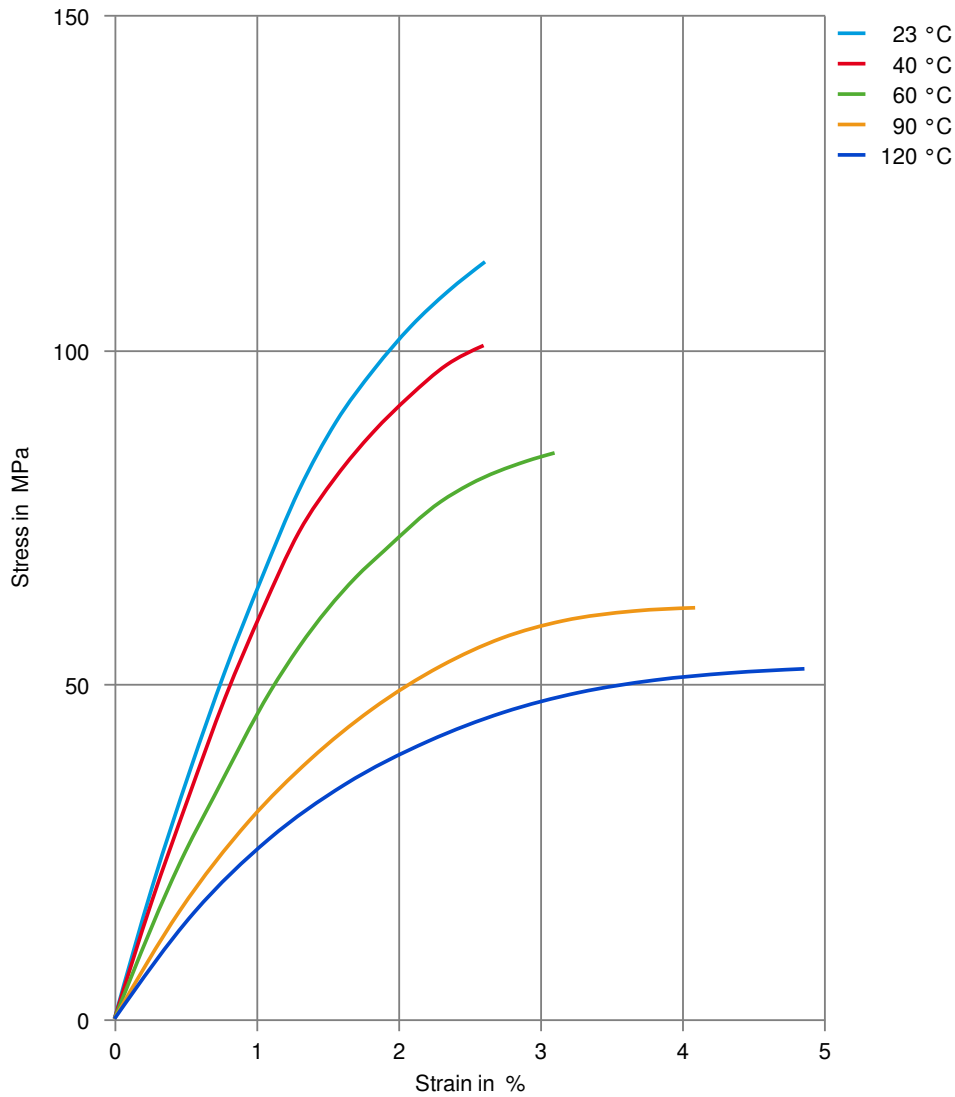
[1]: At levels above 0.02%, strength and toughness will decrease, even though parts may not exhibit surface defects.

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

### Characteristics

Processing	Injection Moulding
Additives	Flame retardant
Special characteristics	Flame retardant

### Stress-strain (measured on Rynite® FR515 NC010)



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Secant modulus-strain  
(measured on Rynite® FR515 NC010)

