



# Rynite® 415HP 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® 415HP BK503 is a 15% glass reinforced, toughened modified polyethylene terephthalate resin improved for easy, fast processing over a broad moulding range.

### Product information

Resin Identification	PET-IGF15	ISO 1043
Part Marking Code	>PET-IGF15<	ISO 11469

### Typical mechanical properties

Tensile Modulus	4500 MPa	ISO 527-1/-2
Stress at break	80 MPa	ISO 527-1/-2
Strain at break	5 %	ISO 527-1/-2
Flexural Modulus	4000 MPa	ISO 178
Charpy impact strength, 23°C	55 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	11 kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, 23°C	11 kJ/m <sup>2</sup>	ISO 180/1A
Poisson's ratio	0.36 -	

### Thermal properties

Melting temperature, 10°C/min	250 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	190 °C	ISO 75-1/-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, impact, 0.75mm	120 °C	UL 746B
RTI, impact, 1.5mm	120 °C	UL 746B
RTI, impact, 3mm	120 °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



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### 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
Glow Wire Flammability Index, 0.75mm	675 °C	IEC 60695-2-12
Glow Wire Flammability Index, 1mm	675 °C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	675 °C	IEC 60695-2-12
Glow Wire Flammability Index, 2mm	675 °C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	700 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	625 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1mm	625 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	625 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 2mm	650 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3mm	700 °C	IEC 60695-2-13
FMVSS Class	B -	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80 mm/min	ISO 3795 (FMVSS 302)

### Electrical properties

Relative permittivity, 100Hz	4.4 -	IEC 62631-2-1
Relative permittivity, 1MHz	3.9 -	IEC 62631-2-1
Dissipation factor, 100Hz	423 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	225 E-4	IEC 62631-2-1
Volume resistivity	1E12 Ohm.m	IEC 62631-3-1
Surface resistivity	1E14 Ohm	IEC 62631-3-2
Electric strength	34 kV/mm	IEC 60243-1
Comparative tracking index	350 -	IEC 60112

### Other properties

Density	1390 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	285 °C
Min. melt temperature	270 °C
Max. melt temperature	290 °C
Max. screw tangential speed	0.2 m/s
Mold Temperature Optimum	95 °C



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Min. mould temperature	75 °C
Max. mould temperature	95 °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.

### Additional Information

Injection molding

#### PREPROCESSING

Drying recommended = Yes  
Drying temperature = 120°C  
Drying time, dehumidified dryer = 4 h

Processing moisture content ≤ 0.02 %  
At levels above 0.02%, strength and toughness will decrease, even though parts may not exhibit surface defects.

#### PROCESSING

Melt temperature optimum = 285°C  
Melt temperature range = 280-300°C

Mold temperature range = 75-95 °C (6mm - 1mm thickness)  
When lower mold temperatures are used, the initial shrinkage and warpage will be lower, but the surface appearance may be poorer and the dimensional change may be greater when the parts are subsequently heated.

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