Celanese
The chemistry inside innovation™

Rynite® 545 BK504

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® 545 BK504 is a 45% glass reinforced modified polyethylene terephthalate resin.

Product information

Resin Identification	PET-GF45	ISO 1043
Part Marking Code	>PET-GF45<	ISO 11469

Rheological properties

Viscosity number	55	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.8	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	15500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	175	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.9	%	ISO 527-1/-2
Flexural modulus	14000	MPa	ISO 178
Charpy impact strength, 23°C	60	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	11	kJ/m^2	ISO 179/1eA
Poisson's ratio	0.33		

Thermal properties

Melting temperature, 10°C/min	249	°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
Coefficient of linear thermal expansion (CLTE), parallel	17	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	85	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
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

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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, 3.0mm	900	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 3.0mm	825	°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	4.5		IEC 62631-2-1
Relative permittivity, 1MHz	4.2		IEC 62631-2-1
Dissipation factor, 100Hz	214	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	136	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	1E15	Ohm	IEC 62631-3-2
Electric strength	32	kV/mm	IEC 60243-1
Comparative tracking index	225		IEC 60112

Physical/Other properties

Density	1700	kg/m³	ISO 1183

VDA Properties

Fogging, G-value (condensate)	0	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
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	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)

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Characteristics

Processing	Injection Moulding

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
BMW	GS93016-PET-GF45	
General Motors	Black (BK504); Part Specific Approval, Please Contact Your CE Representative For More Details.	
General Motors	Natural (NC010), Part Specific Approval, Please Contact Your CE Representative For More Details.	
General Motors	Natural, Part Specific Approval, Please Contact Your CE Representative For More Details.	
Stellantis - Chrysler	MS.50103 / CPN-2600	Black

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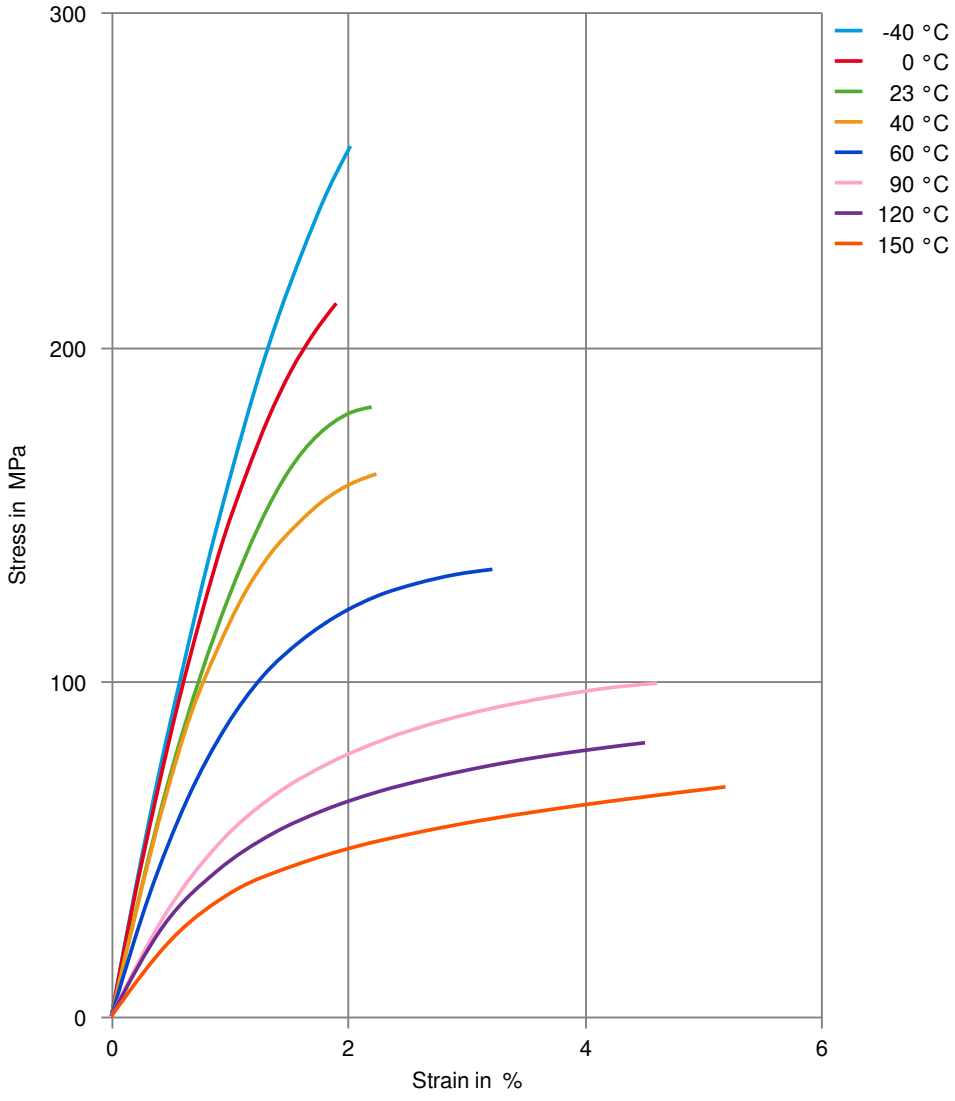
THERMOPLASTIC POLYESTER RESIN

Stress-strain
(measured on Rynite® 545 NC010)



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THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain
(measured on Rynite® 545 NC010)