

DuPont™ Rynite® 545 NC010

THERMOPLASTIC POLYESTER RESIN

Product Information

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 NC010 is a 45% glass reinforced modified polyethylene terephthalate resin.

General information	Value	Unit	Test Standard
Resin Identification	PET-GF45	-	ISO 1043
Part Marking Code	PET-GF45	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate	2.5	cm ³ /10min	ISO 1133
Temperature	280	°C	ISO 1133
Load	2.16	kg	ISO 1133
Viscosity number	55	cm ³ /g	ISO 307, 1157, 1628
Molding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	15500	MPa	ISO 527-1/-2
Stress at break	182	MPa	ISO 527-1/-2
Strain at break	2	%	ISO 527-1/-2
Flexural Modulus	13500	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	15600	MPa	
1000h	13300	MPa	
Charpy impact strength			ISO 179/1eU
73°F	60	kJ/m ²	
-22°F	40	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
73°F	11	kJ/m ²	
-22°F	11	kJ/m ²	
Izod notched impact strength, 73°F	11	kJ/m ²	ISO 180/1A
Hardness, Rockwell, M-scale	100	-	ISO 2039-2
Hardness, Rockwell, R-scale	120	-	ISO 2039-2
Thermal properties	Value	Unit	Test Standard
Melting temperature, 18°F/min	252	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
260 psi	226	°C	
1200 psi	180	°C	
Vicat softening temperature, 90°F/h, 11 lbf	230	°C	ISO 306
Coeff. of linear therm. expansion, parallel	15	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	83	E-6/K	ISO 11359-1/-2
Thermal conductivity solid	0.32	W/(m K)	-
Eff. thermal diffusivity	1.4E-7	m ² /s	-
RTI, electrical			UL 746B
30mil	140	°C	
60mil	140	°C	
120mil	140	°C	

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RTI, impact			UL 746B
30mil	140	°C	
60mil	140	°C	
120mil	140	°C	
RTI, strength			UL 746B
30mil	140	°C	
60mil	140	°C	
120mil	140	°C	
Flammability	Value	Unit	Test Standard
Burning Behav. at 60mil 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
Oxygen index	20	%	ISO 4589-1/-2
Glow Wire Flammability Index			IEC 60695-2-1/2
80mil	750	°C	
120mil	850	°C	
Glow Wire Ignition Temperature, 120mil	825	°C	IEC 60695-2-1/3
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<100	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	4.5	-	
1MHz	4.4	-	
Dissipation factor			IEC 60250
100Hz	70	E-4	
1MHz	110	E-4	
Volume resistivity	1E13	Ohm*m	IEC 60093
Surface resistivity	1E14	Ohm	IEC 60093
Electric strength	32	kV/mm	IEC 60243-1
Comparative tracking index			
Comparative tracking index	250	-	IEC 60112
CTI, 23°C	2	PLC	UL 746A
Other properties	Value	Unit	Test Standard
Humidity absorption, 80mil	0.14	%	Sim. to ISO 62
Water absorption, 80mil	0.62	%	Sim. to ISO 62
Density	1690	kg/m ³	ISO 1183
VDA Properties	Value	Unit	Test Standard
Fogging, G-value (condensate)	0	mg	ISO 6452
Injection	Value	Unit	Test Standard
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	-
Max. screw tangential speed	0.2	m/s	-
Mold Temperature Optimum	120	°C	-
Min. mold temperature	110	°C	-
Max. mold temperature	130 ^[2]	°C	-
Hold pressure range	≥80	MPa	-
Hold pressure time	4	s/mm	-
Back pressure	As low as possible		-

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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)

Characteristics

Processing	• Injection Molding		
Delivery form	• Pellets		
Additives	• Release agent		
Regional Availability	• North America • Europe	• Asia Pacific • South and Central America	• Near East/Africa • Global

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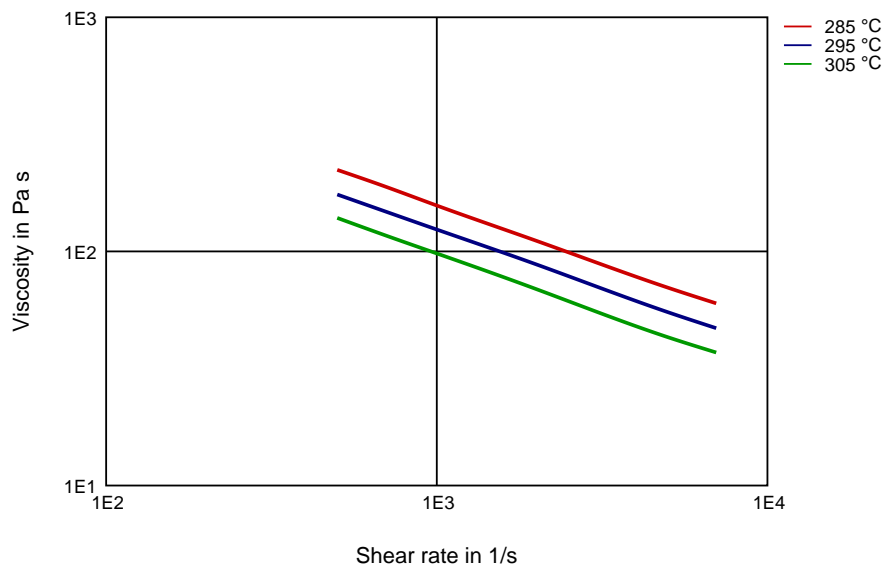


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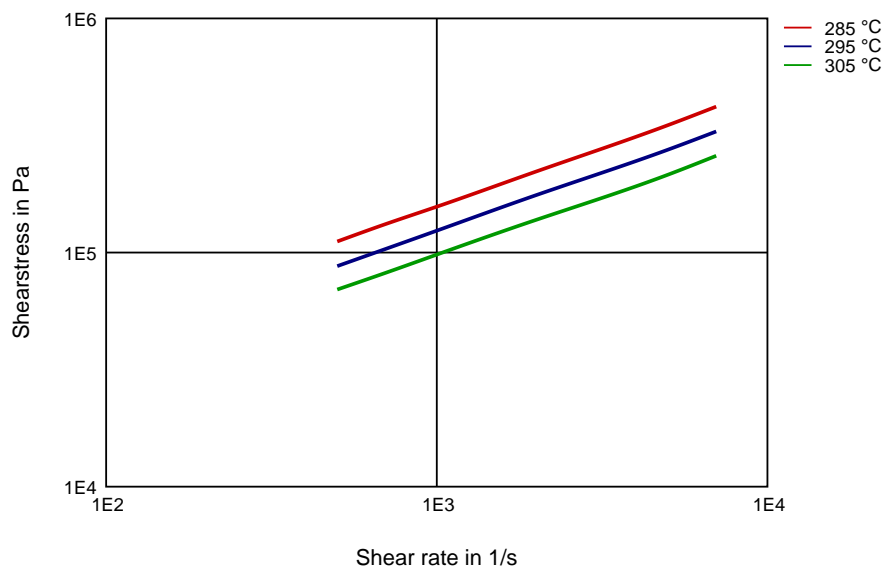
THERMOPLASTIC POLYESTER RESIN

Diagrams

Viscosity-shear rate



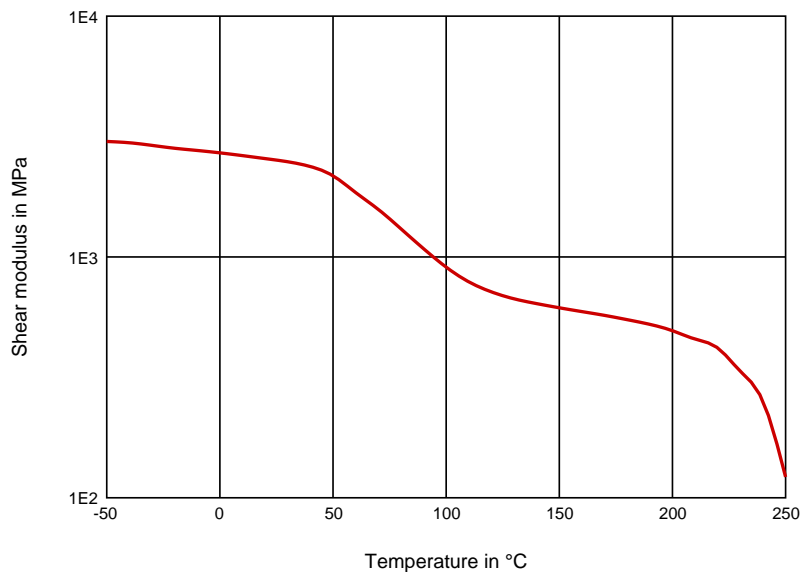
Shearstress-shear rate



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Dynamic Shear modulus-temperature



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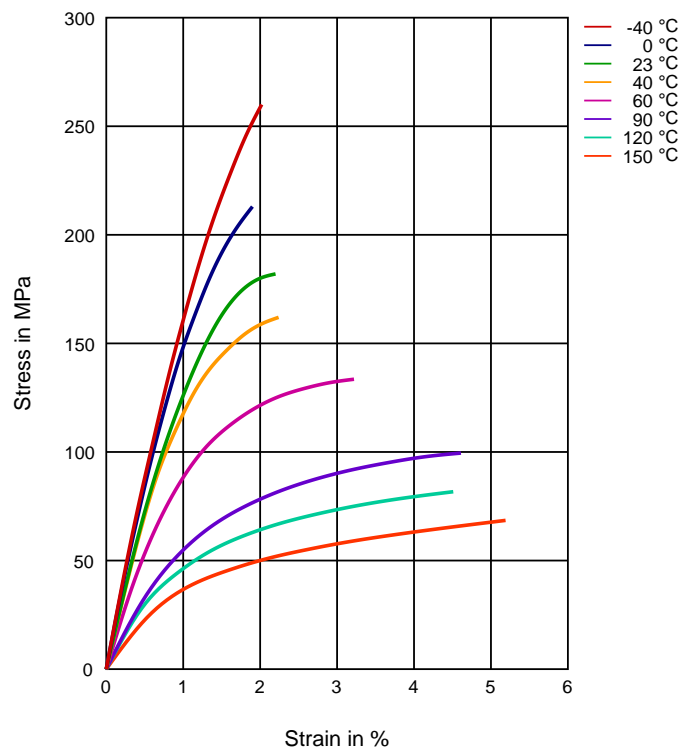
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Stress-strain



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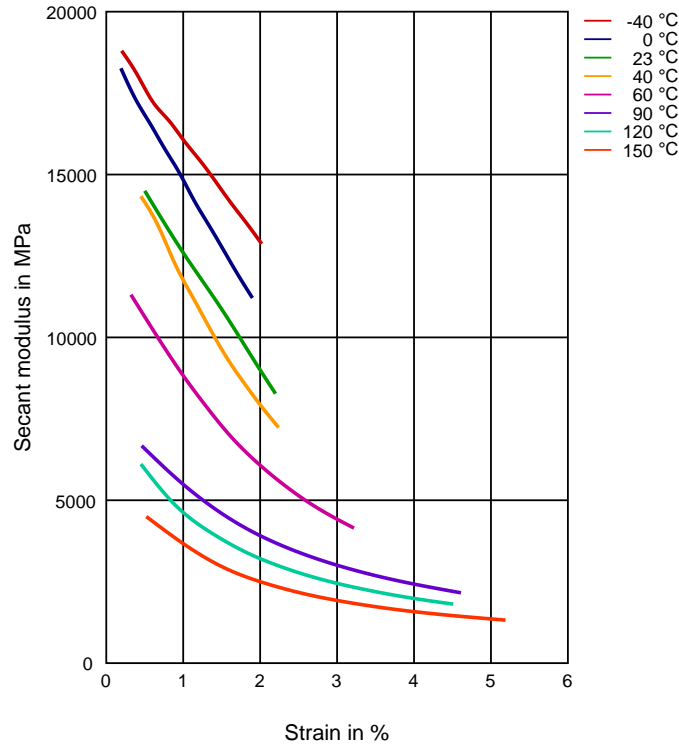
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Secant modulus-strain



Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73 °F unless otherwise stated.

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