

# DuPont™ Rynite® 530 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® 530 NC010 is a 30% glass reinforced modified polyethylene terephthalate resin.**

General information	Value	Unit	Test Standard
Resin Identification	PET-GF30	-	ISO 1043
Part Marking Code	PET-GF30	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate	5	cm <sup>3</sup> /10min	ISO 1133
Temperature	280	°C	ISO 1133
Load	2.16	kg	ISO 1133
Viscosity number	55	cm <sup>3</sup> /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	11000	MPa	ISO 527-1/-2
Stress at break	158	MPa	ISO 527-1/-2
Strain at break	2.5	%	ISO 527-1/-2
Flexural Modulus	8950	MPa	ISO 178
Flexural Strength	230	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	10800	MPa	
1000h	8800	MPa	
Charpy impact strength			ISO 179/1eU
73°F	60	kJ/m <sup>2</sup>	
-22°F	45	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
73°F	11	kJ/m <sup>2</sup>	
-22°F	11	kJ/m <sup>2</sup>	
-40°F	10	kJ/m <sup>2</sup>	
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	224	°C	
65 psi	245	°C	
Vicat softening temperature, 90°F/h, 11 lbf	230	°C	ISO 306
Coeff. of linear therm. expansion, parallel	10	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion			ISO 11359-1/-2
normal	81	E-6/K	
Normal, -40-23°C	67	E-6/K	
Normal, 55-160°C	107	E-6/K	
Parallel, -40-23°C	22	E-6/K	
Parallel, 55-160°C	4	E-6/K	
Thermal conductivity solid	0.29	W/(m K)	-
Eff. thermal diffusivity	1.3E-7	m <sup>2</sup> /s	-

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RTI, electrical			UL 746B
30mil	140	°C	
60mil	140	°C	
120mil	140	°C	
240mil	140	°C	
RTI, impact			UL 746B
30mil	140	°C	
60mil	140	°C	
120mil	140	°C	
240mil	140	°C	
RTI, strength			UL 746B
30mil	140	°C	
60mil	140	°C	
120mil	140	°C	
240mil	140	°C	
<b>Flammability</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
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	750	°C	
Glow Wire Ignition Temperature			IEC 60695-2-1/3
80mil	825	°C	
120mil	825	°C	
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	38	mm/min	ISO 3795 (FMVSS 302)
<b>Electrical properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Relative permittivity			IEC 60250
100Hz	4.2	-	
1MHz	3.8	-	
Dissipation factor			IEC 60250
100Hz	130	E-4	
1MHz	70	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
<b>Other properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Humidity absorption, 80mil	0.2	%	Sim. to ISO 62
Water absorption, 80mil	0.7	%	Sim. to ISO 62
Density	1560	kg/m <sup>3</sup>	ISO 1183
<b>VDA Properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Emission of organic compounds	16	µgC/g	VDA 277
Odor test	3	class	VDA 270
Fogging, G-value (condensate)	0	mg	ISO 6452
<b>Injection</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Drying Recommended	yes	-	-
Drying Temperature	120	°C	-
Drying Time, Dehumidified Dryer	4 - 6	h	-

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Processing Moisture Content	≤0.02 <sup>[1]</sup> %	-
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	130 °C	-
Min. mold temperature	120 °C	-
Max. mold temperature	140 <sup>[2]</sup> °C	-
Hold pressure range	≥80 MPa	-
Hold pressure time	4 s/mm	-
Back pressure	As low as possible	-
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

### Processing Texts

#### Injection molding

When lower mold temperatures are used, the initial warpage and shrinkage will be lower, but the surface appearance will be poorer and the dimensional change may be greater when parts are subsequently heated.

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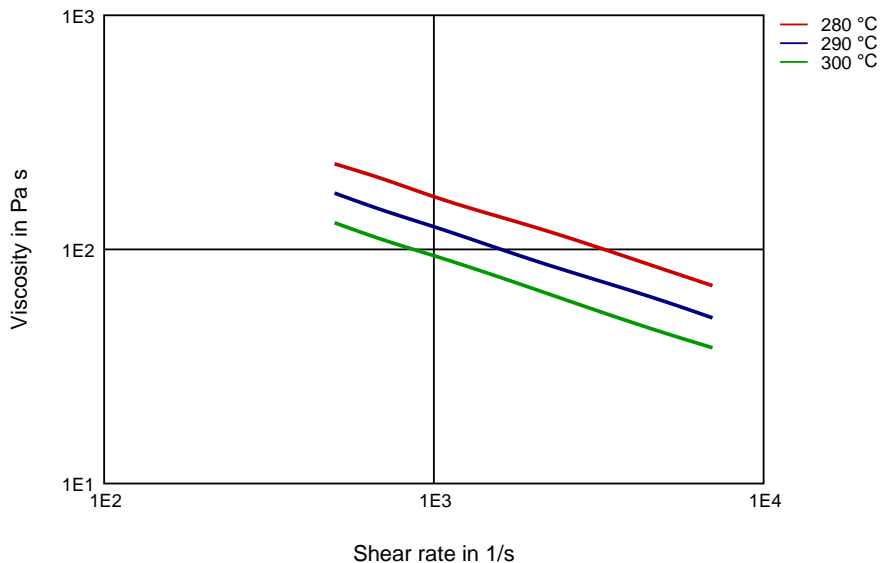


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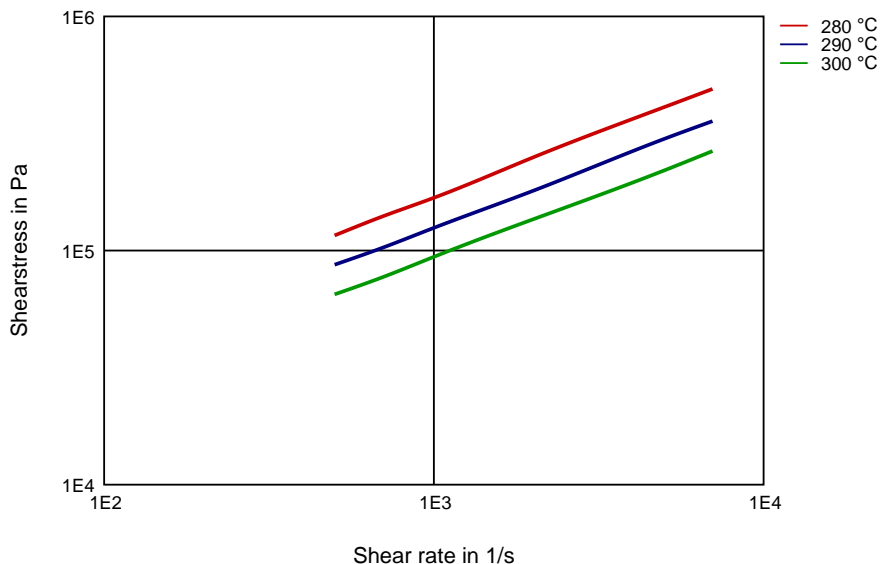
## THERMOPLASTIC POLYESTER RESIN

### Diagrams

#### Viscosity-shear rate



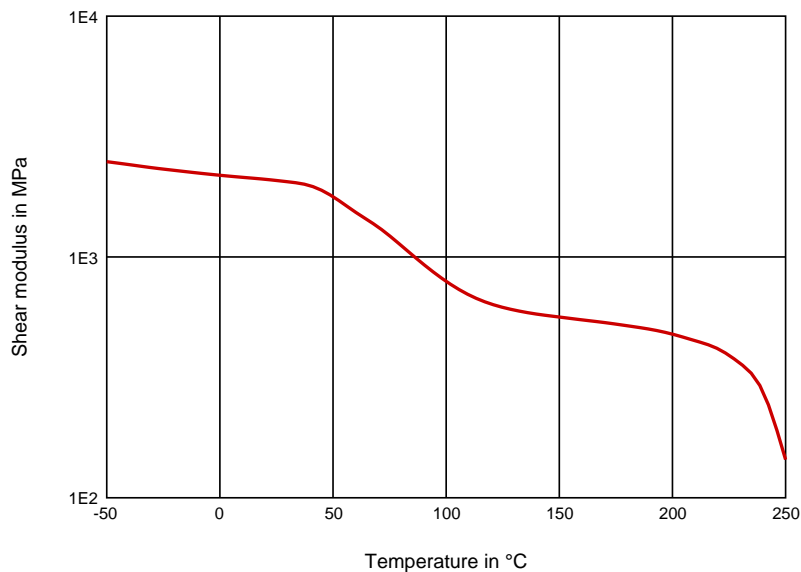
#### Shearstress-shear rate



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## THERMOPLASTIC POLYESTER RESIN

Dynamic Shear modulus-temperature



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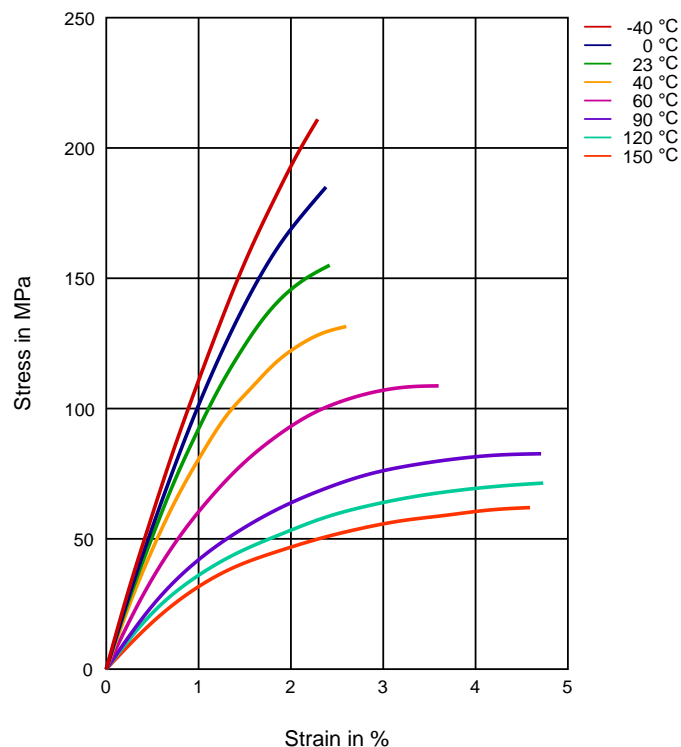
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## THERMOPLASTIC POLYESTER RESIN

### Stress-strain



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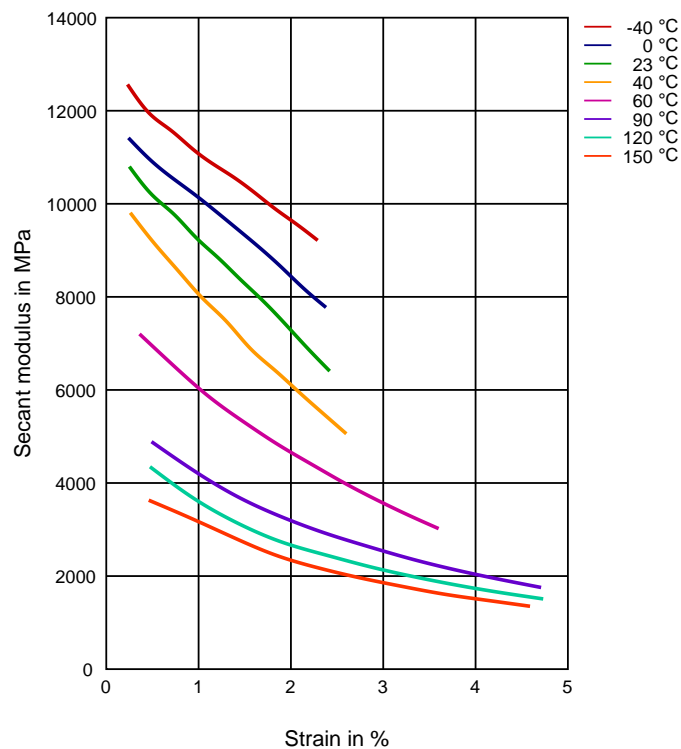
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## THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain



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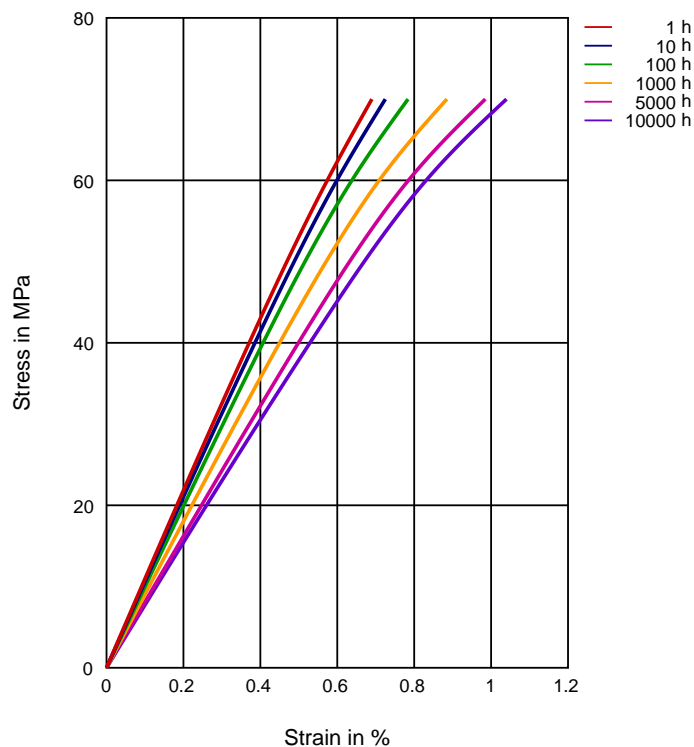
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## THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 23°C



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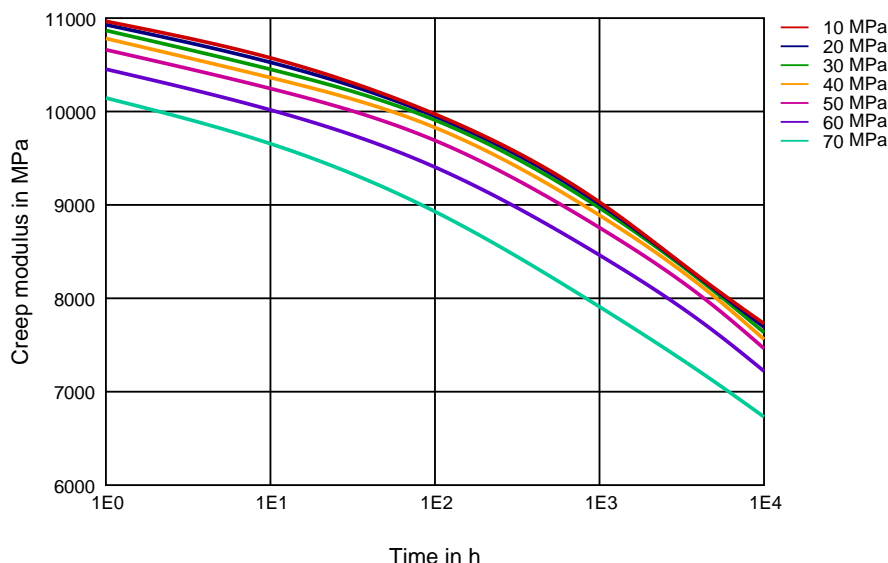




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## THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 23 °C



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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