

# DuPont™ Rynite® PET

thermoplastic polyester resin

## Rynite® FR530 NC010

Rynite® FR530 NC010 is a 30% glass reinforced, flame retardant, modified polyethylene terephthalate resin approved by UL as UL94V-0 @ 0.35mm. It has an outstanding balance of properties, temperature index and flow characteristics.

Property	Test Method	Units	Value
<b>Identification</b>			
Resin Identification	ISO 1043		PET-GF30FR(17)
Part Marking Code	ISO 11469		>PET-GF30FR(17)<
<b>Mechanical</b>			
Stress at Break	ISO 527	MPa (kpsi)	135 (19.6)
Tensile Strength	ASTM D 638	MPa (kpsi)	
-40°C (-40°F)			193 (28.0)
23°C (73°F)			138 (20.0)
90°C (194°F)			72.4 (10.5)
150°C (300°F)			44.8 (6.5)
Strain at Break	ISO 527	%	2
Elongation at Break	ASTM D 638	%	
-40°C (-40°F)			1.9
23°C (73°F)			2.1
90°C (194°F)			3.5
150°C (300°F)			4.0

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.

Test temperatures are 23°C unless otherwise stated.

Shrinkage generated per ISO 294-4 based on 60 X 60mm end-gated plaques or ASTM D 955 based on 76 X 127mm (3 X 5in) end-gated plaques.

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<b>Mechanical</b>			
Tensile Modulus	ASTM D 638	MPa (kpsi)	
-40°C (-40°F)			12500 (1810)
23°C (73°F)			11000 (1590)
90°C (194°F)			5580 (809)
150°C (300°F)			3890 (564)
Tensile Modulus	ISO 527	MPa (kpsi)	11500 (1670)
Shear Strength	ASTM D 732	MPa (kpsi)	60.0 (8.7)
Poissons Ratio			0.40
Flexural Modulus	ASTM D 790	MPa (kpsi)	
-40°C (-40°F)			11000 (1600)
23°C (73°F)			10300 (1500)
90°C (194°F)			4650 (674)
150°C (300°F)			2650 (384)
Flexural Modulus	ISO 178	MPa (kpsi)	10500 (1520)
Flexural Strength	ASTM D 790	MPa (kpsi)	
-40°C (-40°F)			262 (38.0)
23°C (73°F)			200 (29.0)
90°C (194°F)			107 (15.5)
150°C (300°F)			69.0 (10.0)
Compressive Strength	ASTM D 695	MPa (kpsi)	200 (29.0)
Deformation Under Load	ASTM D 621	%	
23°C (73°F), 27.6MPa (4000psi)			0.5
50°C (122°F), 27.6MPa (4000psi)			1.2
Flexural Fatigue	ASTM D 671	MPa (kpsi)	
Cycles 10E6			41.3 (6.0)
Flexural Creep Strain	ASTM D 2990	%	
23°C (73°F), 27.6MPa (4000psi)			0.46
60°C (140°F), 27.6MPa (4000psi)			1.01
125°C (257°F), 27.6MPa (4000psi)			1.86

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Property	Test Method	Units	Value
<b>Mechanical</b>			
Notched Izod Impact Strength -40°C (-40°F) -30°C (-22°F) 23°C (73°F)	ISO 180/1A	kJ/m <sup>2</sup>	8
			8
			9
Izod Impact -40°C (-40°F) 23°C (73°F)	ASTM D 256	J/m (ft lb/in)	80 (1.5)
			91 (1.7)
Unnotched Impact -40°C (-40°F) 23°C (73°F)	ASTM D 4812	J/m (ft lb/in)	535 (10.0)
			585 (11.0)
Notched Charpy Impact Strength -30°C (-22°F) 23°C (73°F)	ISO 179/1eA	kJ/m <sup>2</sup>	9.5
			10
Unnotched Charpy Impact Strength -30°C (-22°F) 23°C (73°F)	ISO 179/1eU	kJ/m <sup>2</sup>	40
			40
<b>Thermal</b>			
Deflection Temperature 0.45MPa 1.80MPa	ISO 75f	°C (°F)	243 (469)
			225 (437)
Melting Temperature 10°C/min	ISO 11357-1/-3	°C (°F)	252 (486)
CLTE, Normal -40 - 23°C (-40 - 73°F) 23 - 55°C (73 - 130°F) 55 - 160°C (130 - 320°F)	ISO 11359-1/-2	E-4/C (E-4/F)	0.68 (0.38)
			0.92 (0.51)
			0.98 (0.54)

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<b>Thermal</b>			
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			0.22 (0.12)
23 - 55°C (73 - 130°F)			0.19 (0.11)
55 - 160°C (130 - 320°F)			0.10 (0.06)
Thermal Conductivity	ASTM C 177	W/m K (Btu in/h ft <sup>2</sup> F)	0.25 (1.7)
<b>Electrical</b>			
Surface Resistivity	ASTM D 257	ohm	1E14
Volume Resistivity	ASTM D 257	ohm cm	1E15
Dielectric Strength, Short Time	ASTM D 149	kV/mm (V/mil)	
23°C (73°F), 500 V/s, in oil, 1.6mm (0.062in)			25.0 (635)
23°C (73°F), 500 V/s, in oil, 3.2mm (0.126in)			18.0 (460)
95°C (200°F), 500 V/s, in oil, 1.6mm (0.062in)			23.5 (600)
95°C (200°F), 500 V/s, in oil, 3.2mm (0.126in)			18.0 (460)
150°C (300°F), 500 V/s, in oil, 1.6mm (0.062in)			13.0 (330)
150°C (300°F), 500 V/s, in oil, 3.2mm (0.126in)			9.0 (230)
Dielectric Strength, Step by Step	ASTM D 149	kV/mm (V/mil)	
3.2mm (0.126in)			14.0 (355)
Dielectric Constant	ASTM D 150		
1E3 Hz			3.8
1E6 Hz			3.7
Dissipation Factor	ASTM D 150		
1E3 Hz			0.011
1E6 Hz			0.018
Arc Resistance	ASTM D 495	s	60-120
CTI	UL 746A	V	250
<b>Flammability</b>			
Flammability Classification	IEC 60695-11-10		
0.35mm			V-0

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Property	Test Method	Units	Value
<b>Flammability</b>			
Flammability Classification	UL94		
0.35mm			V-0
5V Rating	IEC 60695-11-20		5VA
5V Rating	UL94		5VA
5V Min. Thickness Tested	IEC 60695-11-20	mm	0.9
5V Min. Thickness Tested	UL94	mm	0.9
Oxygen Index	ASTM D 2863	%	33
Glow Wire Flammability Index	IEC 60695-2-12	°C	
0.75mm			960
3.0mm			960
Glow Wire Ignition Temperature	IEC 60695-2-13	°C	
0.75mm			800
1.5mm			800
2.0mm			985
High Amperage Arc Ignition Resistance	UL 746A	arcs	
0.35mm			60
0.75mm			60
0.9mm			60
1.5mm			60
2.0mm			60
3.0mm			36
High Voltage Arc Tracking Rate		mm/min	10-25
Hot Wire Ignition	UL 746A	s	
0.35mm			17
0.75mm			30
0.9mm			30
1.5mm			120
2.0mm			120
3.0mm			120

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<b>Temperature Index</b>			
RTI, Electrical 0.35mm	UL 746B	°C	155
RTI, Impact 0.75mm	UL 746B	°C	155
RTI, Strength 0.75mm	UL 746B	°C	155
<b>Other</b>			
Density	ISO 1183	kg/m <sup>3</sup> (g/cm <sup>3</sup> )	1680 (1.68)
Hardness, Rockwell Scale M Scale R	ASTM D 785		95 120
Coefficient of Friction Self, static Steel, static	ASTM D 1894		0.18 0.19
Taber Abrasion CS-17 Wheel, 1kg, 1000 cycles	ASTM D 1044	mg	38
Water Absorption 50%RH,23°C,24h	ASTM D 570	%	0.05
Molding Shrinkage Normal, 2.0mm Parallel, 2.0mm	ISO 294-4	%	0.8 0.2
Mold Shrinkage Flow, 1.57mm (0.062in) Flow, 3.2mm (0.126in) Transverse, 1.57mm (0.062in) Transverse, 3.2mm (0.126in)		%	0.16 0.25 0.68 0.75

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<b>Processing</b>			
Melt Temperature Range		°C (°F)	270-290 (520-555)
Melt Temperature Optimum		°C (°F)	280 (535)
Mold Temperature Range		°C (°F)	>95 (>205)
Mold Temperature Optimum		°C (°F)	110 (230)
Drying Time, Dehumidified Dryer		h	4
Drying Temperature		°C (°F)	120 (250)
Processing Moisture Content		%	<0.02

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