DuPont™ Rynite® PET

thermoplastic polyester resin

Rynite® FR945 NC010

Rynite® FR945 NC010 is a 45% mineral/glass reinforced, flame retardant, low warp, high stiffness, modified polyethylene terephthalate resin for injection molding. Recognized by UL as UL94V-0 at 0.81mm and with a 150°C RTI.

Property	Test Method	Units	Value
Identification			
Resin Identification	ISO 1043		PET-(MD+GF)45FR(17)
Part Marking Code	ISO 11469		>PET-(MD+GF)45FR(17)<
Mechanical			
Stress at Break	ISO 527	MPa (kpsi)	95 (13.8)
Strain at Break	ISO 527	%	1.2
Tensile Modulus	ISO 527	MPa (kpsi)	12800 (1860)
Shear Strength	ASTM D 732	MPa (kpsi)	48.3 (7.0)
Poissons Ratio			0.38
Flexural Modulus	ISO 178	MPa (kpsi)	12500 (1810)
Flexural Strength	ISO 178	MPa (kpsi)	145 (21.0)
Compressive Strength	ASTM D 695	MPa (kpsi)	168 (24.4)
Deformation Under Load	ASTM D 621	%	
23°C (73°F), 27.6MPa (4000psi)			0.4
50°C (122°F), 27.6MPa (4000psi)			1.2
Flexural Fatigue	ASTM D 671	MPa (kpsi)	
Cycles 10E6			38.0 (5.5)

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 plagues or ASTM D 955 based on 76 X 127mm (3 X 5in) end-gated plaques.

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Property	Test Method	Units	Value
Mechanical			
Flexural Creep Strain	ASTM D 2990	%	
23°C (73°F), 27.6MPa (4000psi)			0.46
60°C (140°F), 27.6MPa (4000psi)			0.87
125°C (257°F), 27.6MPa (4000psi)			1.83
Notched Izod Impact Strength	ISO 180/1A	kJ/m^2	4
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m^2	
-40°C (-40°F)			3
23°C (73°F)			4
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m^2	20
Thermal			
Deflection Temperature	ISO 75f	°C (°F)	
0.45MPa			240 (464)
1.80MPa			200 (392)
Melting Temperature	ISO 11357-1/-3	°C (°F)	
10°C/min			250 (482)
CLTE, Normal	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			0.49 (0.27)
23 - 55°C (73 - 130°F)			0.65 (0.36)
55 - 160°C (130 - 320°F)			0.82 (0.46)
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 23°C (-40 - 73°F)			0.17 (0.09)
23 - 55°C (73 - 130°F)			0.13 (0.07)
55 - 160°C (130 - 320°F)			0.03 (0.02)
Thermal Conductivity	ASTM C 177	W/m K (Btu in/h ft^2 F)	2.4 (1.65)

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Electrical			
Surface Resistivity	ASTM D 257	ohm	1E13
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)			24.5 (620)
23°C (73°F), 500 V/s, in oil, 3.2mm (0.126in)			17.0 (430)
95°C (200°F), 500 V/s, in oil, 1.6mm (0.062in)			23.0 (585)
95°C (200°F), 500 V/s, in oil, 3.2mm (0.126in)			17.5 (445)
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)			10.5 (265)
Dielectric Strength, Step by Step	ASTM D 149	kV/mm (V/mil)	
3.2mm (0.126in)			15.0 (380)
Dielectric Constant	ASTM D 150		
1E3 Hz			4.1
1E6 Hz			4.0
Dissipation Factor	ASTM D 150		
1E3 Hz			0.009
1E6 Hz			0.017
Arc Resistance	ASTM D 495	s	120-180
CTI	UL 746A	V	
3.0mm			240
Flammability			
Flammability Classification	IEC 60695-11-10		
0.81mm			V-0
Flammability Classification	UL94		
0.81mm			V-0
5V Rating	IEC 60695-11-20		5VA

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Flammability			
5V Rating	UL94		5VA
5V Min. Thickness Tested	IEC 60695-11-20	mm	1.5
5V Min. Thickness Tested	UL94	mm	1.5
Oxygen Index	ASTM D 2863	%	33
Glow Wire Flammability Index	IEC 60695-2-12	°C	
0.81mm			960
1.5mm			960
3.0mm			960
Glow Wire Ignition Temperature	IEC 60695-2-13	°C	
0.81mm			825
1.5mm			825
3.0mm			925
High Amperage Arc Ignition Resistance	UL 746A	arcs	
0.81mm			30
1.5mm			30
2.3mm			30
3.0mm			81
High Voltage Arc Tracking Rate		mm/min	10-25
Hot Wire Ignition	UL 746A	s	
0.81mm			30
1.5mm			120
2.3mm			120
3.0mm			120
Temperature Index			
RTI, Electrical	UL 746B	°C	
0.81mm			150
RTI, Impact	UL 746B	°C	
0.81mm			150
RTI, Strength	UL 746B	°C	
0.81mm			150

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Other			
Density	ISO 1183	kg/m^3 (g/cm^3)	1850 (1.85)
Hardness, Rockwell	ASTM D 785		
Scale M			95
Scale R			120
Coefficient of Friction	ASTM D 1894		
Self, static			0.20
Steel, static			0.20
Taber Abrasion	ASTM D 1044	mg	
CS-17 Wheel, 1kg, 1000 cycles			81
Water Absorption	ASTM D 570	%	
50%RH,23°C,24h			0.05
Molding Shrinkage	ISO 294-4	%	
Normal, 2.0mm			0.8
Parallel, 2.0mm			0.5
Mold Shrinkage		%	
Flow, 1.6mm (0.062in)			0.22
Flow, 3.2mm (0.126in)			0.35
Transverse, 1.6mm (0.062in)			0.71
Transverse, 3.2mm (0.126in)			0.70
Processing			
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)
Injection Speed		s	Fast
Drying Time, Dehumidified Dryer		h	4
Drying Temperature		°C (°F)	120 (250)
Processing Moisture Content		%	<0.02

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