



Rynite® 935 NC010

DuPont Performance Polymers - THERMOPLASTIC POLYESTER RESIN

Wednesday, January 29, 2020

General Information

Product Description

35% Glass Reinforced Polyethylene Terephthalate

General

Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Filler / Reinforcement	• Glass Fiber, 35% Filler by Weight		
Additive	• Mold Release		
RoHS Compliance	• Contact Manufacturer		
Automotive Specifications	• FORD WSK-M4D779-A2	• GM GMP.PET.003	
Forms	• Pellets		
Processing Method	• Injection Molding		
Part Marking Code (ISO 11469)	• >PET-(MD+GF)35<		
Resin ID (ISO 1043)	• PET-(MD+GF)35		

ASTM & ISO Properties ¹

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density	1.58 g/cm ³	1.58 g/cm ³	ISO 1183
Molding Shrinkage			ISO 294-4
Across Flow	0.70 %	0.70 %	
Flow	0.30 %	0.30 %	
Water Absorption			ISO 62
Saturation, 73°F (23°C), 0.0787 in (2.00 mm)	0.83 %	0.83 %	
Equilibrium, 73°F (23°C), 0.0787 in (2.00 mm), 50% RH	0.13 %	0.13 %	
Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Modulus	1.48E+6 psi	10200 MPa	ISO 527-2
Tensile Stress (Break)	12300 psi	85.0 MPa	ISO 527-2
Tensile Strain (Break)	2.0 %	2.0 %	ISO 527-2
Tensile Creep Modulus			ISO 899-1
1 hr	1.36E+6 psi	9350 MPa	
1000 hr	1.12E+6 psi	7690 MPa	
Flexural Modulus	1.32E+6 psi	9100 MPa	ISO 178
Compressive Stress	20300 psi	140 MPa	ISO 604
Shear Strength	7980 psi	55.0 MPa	ASTM D732
Poisson's Ratio	0.34	0.34	
Impact	Typical Value (English)	Typical Value (SI)	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F (-30°C)	1.9 ft·lb/in ²	4.0 kJ/m ²	
73°F (23°C)	2.9 ft·lb/in ²	6.0 kJ/m ²	

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Impact	Typical Value (English)	Typical Value (SI)	Test Method
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F (-30°C)	9.5 ft·lb/in ²	20 kJ/m ²	
73°F (23°C)	12 ft·lb/in ²	25 kJ/m ²	
Hardness	Typical Value (English)	Typical Value (SI)	Test Method
Rockwell Hardness			ISO 2039-2
M-Scale	75	75	
R-Scale	115	115	
Thermal	Typical Value (English)	Typical Value (SI)	Test Method
Heat Deflection Temperature			
66 psi (0.45 MPa), Unannealed	455 °F	235 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	392 °F	200 °C	ISO 75-2/A
Vicat Softening Temperature	401 °F	205 °C	ISO 306/B50
Melting Temperature ²	486 °F	252 °C	ISO 11357-3
CLTE			ISO 11359-2
Flow	8.9E-6 in/in/°F	1.6E-5 cm/cm/°C	
Flow : -40 to 73°F (-40 to 23°C)	1.4E-5 in/in/°F	2.6E-5 cm/cm/°C	
Transverse	2.9E-5 in/in/°F	5.2E-5 cm/cm/°C	
Transverse : -40 to 73°F (-40 to 23°C)	2.9E-5 in/in/°F	5.3E-5 cm/cm/°C	
Thermal Conductivity	1.8 Btu·in/hr/ft ² /°F	0.26 W/m/K	
Effective Thermal Diffusivity	1.40E-7 m ² /s	1.40E-7 m ² /s	
Electrical	Typical Value (English)	Typical Value (SI)	Test Method
Surface Resistivity	1.0E+14 ohms	1.0E+14 ohms	IEC 62631-3-2
Volume Resistivity	1.0E+13 ohms·m	1.0E+13 ohms·m	IEC 62631-3-1
Electric Strength	990 V/mil	39 kV/mm	IEC 60243-1
Relative Permittivity			IEC 62631-2-1
1 MHz	4.10	4.10	
100 Hz	4.50	4.50	
Dissipation Factor			IEC 62631-2-1
1 MHz	0.014	0.014	
100 Hz	0.030	0.030	
Comparative Tracking Index	300 V	300 V	IEC 60112
Flammability	Typical Value (English)	Typical Value (SI)	Test Method
Burning Rate ³ (0.0394 in (1.00 mm))	< 3.1 in/min	< 80 mm/min	ISO 3795
Flame Rating			UL 94
0.030 in (0.75 mm)	HB	HB	IEC 60695-11-10,
0.06 in (1.5 mm)	HB	HB	-20
Glow Wire Ignition Temperature			IEC 60695-2-13
0.030 in (0.75 mm)	1470 °F	800 °C	
0.06 in (1.5 mm)	1470 °F	800 °C	
0.12 in (3.0 mm)	1560 °F	850 °C	
Oxygen Index	21 %	21 %	ISO 4589-2
FMVSS Flammability	B	B	FMVSS 302
Fogging - G-value (condensate)	1.0E-4 g	1.0E-4 g	ISO 6452

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Flammability	Typical Value (English)	Typical Value (SI)	Test Method
Glow Wire Temperature - No Flame			IEC 60335-1
29.5 mil (750.0 µm)	1382 °F	750 °C	
39.4 mil (1.00 mm)	1382 °F	750 °C	
59.1 mil (1.50 mm)	1382 °F	750 °C	
0.12 in (3.00 mm)	1562 °F	850 °C	

Fill Analysis	Typical Value (English)	Typical Value (SI)
Melt Density	1.32 g/cm ³	1.32 g/cm ³
Ejection Temperature	338 °F	170 °C
Specific Heat Capacity of Melt	0.428 Btu/lb/°F	1790 J/kg/°C
Thermal Conductivity of Melt	2.2 Btu·in/hr/ft ² /°F	0.32 W/m/K

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	248 °F	120 °C
Drying Time - Desiccant Dryer	4.0 to 6.0 hr	4.0 to 6.0 hr
Suggested Max Moisture	0.020 %	0.020 %
Processing (Melt) Temp	536 to 572 °F	280 to 300 °C
Melt Temperature, Optimum	545 °F	285 °C
Mold Temperature	212 to 248 °F	100 to 120 °C
Mold Temperature, Optimum	230 °F	110 °C
Holding Pressure	11600 psi	80.0 MPa
Back Pressure	As low as possible	As low as possible
Drying Recommended	yes	yes
Hold Pressure Time	4.00 s/mm	4.00 s/mm
Maximum Screw Tangential Speed	472 in/min	12 m/min

Notes

¹ Typical properties: these are not to be construed as specifications.

² 10°C/min

³ FMVSS 302