

Celanese Zytel® FR70M30V0

Categories: Polymer; Thermoplastic; Nylon (Polyamide PA); Nylon 66 (PA66); Nylon 66, 30% Mineral Filled

Material Notes: 30% Mineral Reinforced, Flame Retardant, Polyamide 66

Former DuPont product acquired by Celanese in 2022.

Physical Properties	Metric	English	Comments
Density	1.62 g/cc	0.0585 lb/in ³	DAM; ISO 1183
Melt Density	1.40 g/cc @Temperature 290 °C	0.0506 lb/in ³ @Temperature 554 °F	
Water Absorption	4.0 % @Thickness 2.00 mm	4.0 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Moisture Absorption	1.30 % @Thickness 2.00 mm	1.30 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Linear Mold Shrinkage, Flow	0.010 cm/cm	0.010 in/in	DAM; ISO 294-4, 2577
Linear Mold Shrinkage, Transverse	0.010 cm/cm	0.010 in/in	DAM; ISO 294-4, 2577

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	50.0 MPa	7250 psi	50% RH; ISO 527-1/-2
	73.0 MPa	10600 psi	DAM; ISO 527-1/-2
Elongation at Break	2.0 %	2.0 %	DAM; ISO 527-1/-2
	6.0 %	6.0 %	50% RH; ISO 527-1/-2
Tensile Modulus	3.50 GPa	508 ksi	50% RH; ISO 527-1/-2
	6.50 GPa	943 ksi	DAM; ISO 527-1/-2
Poissons Ratio	0.35	0.35	DAM
	0.37	0.37	50% RH
Izod Impact, Notched (ISO)	1.90 kJ/m ² @Temperature -30.0 °C	0.904 ft-lb/in ² @Temperature -22.0 °F	50% RH; ISO 180/1A
	2.00 kJ/m ² @Temperature -30.0 °C	0.952 ft-lb/in ² @Temperature -22.0 °F	DAM; ISO 180/1A
	2.00 kJ/m ² @Temperature 23.0 °C	0.952 ft-lb/in ² @Temperature 73.4 °F	DAM; ISO 180/1A
	2.50 kJ/m ² @Temperature 23.0 °C	1.19 ft-lb/in ² @Temperature 73.4 °F	50% RH; ISO 180/1A
Charpy Impact Unnotched	1.90 J/cm ² @Temperature -30.0 °C	9.04 ft-lb/in ² @Temperature -22.0 °F	50% RH; ISO 179/1eU
	2.00 J/cm ² @Temperature -30.0 °C	9.52 ft-lb/in ² @Temperature -22.0 °F	DAM; ISO 179/1eU
	2.00 J/cm ² @Temperature 23.0 °C	9.52 ft-lb/in ² @Temperature 73.4 °F	DAM; ISO 179/1eU
	3.00 J/cm ² @Temperature 23.0 °C	14.3 ft-lb/in ² @Temperature 73.4 °F	50% RH; ISO 179/1eU
Charpy Impact, Notched	0.200 J/cm ² @Temperature -30.0 °C	0.952 ft-lb/in ² @Temperature -22.0 °F	50% RH; ISO 179/1eA
	0.200 J/cm ² @Temperature -30.0 °C	0.952 ft-lb/in ² @Temperature -22.0 °F	DAM; ISO 179/1eA
	0.250 J/cm ² @Temperature 23.0 °C	1.19 ft-lb/in ² @Temperature 73.4 °F	DAM; ISO 179/1eA

	0.300 J/cm ² @Temperature 23.0 °C	1.43 ft-lb/in ² @Temperature 73.4 °F	50% RH; ISO 179/1eA
Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+11 ohm-cm	1.00e+11 ohm-cm	50% RH; IEC 62631-3-1
	>= 1.00e+15 ohm-cm	>= 1.00e+15 ohm-cm	DAM; IEC 62631-3-1
Surface Resistance	>= 1.00e+15 ohm	>= 1.00e+15 ohm	50% RH; IEC 62631-3-2
Dielectric Constant	3.7 @Frequency 1e+6 Hz	3.7 @Frequency 1e+6 Hz	DAM; IEC 62631-2-1
	4.1 @Frequency 100 Hz	4.1 @Frequency 100 Hz	DAM; IEC 62631-2-1
	4.2 @Frequency 1e+6 Hz	4.2 @Frequency 1e+6 Hz	50% RH; IEC 62631-2-1
	9.1 @Frequency 100 Hz	9.1 @Frequency 100 Hz	50% RH; IEC 62631-2-1
Dielectric Strength	33.0 kV/mm	838 kV/in	50% RH; IEC 60243-1
	40.0 kV/mm	1020 kV/in	DAM; IEC 60243-1
Dissipation Factor	0.014 @Frequency 1e+6 Hz	0.014 @Frequency 1e+6 Hz	DAM; IEC 62631-2-1
	0.014 @Frequency 100 Hz	0.014 @Frequency 100 Hz	DAM; IEC 62631-2-1
	0.041 @Frequency 100 Hz	0.041 @Frequency 100 Hz	50% RH; IEC 62631-2-1
	0.050 @Frequency 1e+6 Hz	0.050 @Frequency 1e+6 Hz	50% RH; IEC 62631-2-1
Comparative Tracking Index	325 V	325 V	DAM; IEC 60112
Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	64.0 µm/m-°C	35.6 µin/in-°F	DAM; ISO 11359-1/-2
CTE, linear, Transverse to Flow	81.0 µm/m-°C	45.0 µin/in-°F	DAM; ISO 11359-1/-2
Specific Heat Capacity	1.70 J/g-°C @Temperature 290 °C	0.406 BTU/lb-°F @Temperature 554 °F	Melt
Thermal Conductivity	0.230 W/m-K @Temperature 290 °C	1.60 BTU-in/hr-ft ² -°F @Temperature 554 °F	Melt
Melting Point	263 °C	505 °F	10°C/min; DAM; ISO 11357-1/-3
Deflection Temperature at 0.46 MPa (66 psi)	238 °C	460 °F	DAM; ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	145 °C	293 °F	DAM; ISO 75-1/-2
Vicat Softening Point	235 °C	455 °F	50°C/h, 50N; DAM; ISO 306

Glass Transition Temp, Tg	20.0 °C	68.0 °F	10°C/min; 50% RH; ISO 11357-1/-2
	80.0 °C	176 °F	10°C/min; DAM; ISO 11357-1/-2
Flammability, UL94	V-2 @Thickness 0.750 mm	V-2 @Thickness 0.0295 in	DAM; IEC 60695-11-10
	V-0 @Thickness 1.50 mm	V-0 @Thickness 0.0591 in	DAM; IEC 60695-11-10
	5VA @Thickness 1.50 mm	5VA @Thickness 0.0591 in	DAM; IEC 60695-11-20
Glow Wire Ignition Temperature	800 °C @Thickness 0.750 mm	1470 °F @Thickness 0.0295 in	DAM; IEC 60695-2-13
	800 °C @Thickness 1.00 mm	1470 °F @Thickness 0.0394 in	DAM; IEC 60695-2-13
	800 °C @Thickness 1.50 mm	1470 °F @Thickness 0.0591 in	DAM; IEC 60695-2-13
	800 °C @Thickness 3.00 mm	1470 °F @Thickness 0.118 in	DAM; IEC 60695-2-13

Processing Properties	Metric	English	Comments
Melt Temperature	290 °C	554 °F	Optimum, Injection
	280 - 300 °C	536 - 572 °F	Range, Injection
Mold Temperature	70.0 - 120 °C	158 - 248 °F	Injection
	100 °C	212 °F	Optimum, Injection
Ejection Temperature	210 °C	410 °F	Injection
Drying Temperature	80.0 °C	176 °F	Injection
Dry Time	2.00 - 4.00 hour	2.00 - 4.00 hour	Injection, Dehumidified Dryer
Moisture Content	<= 0.20 %	<= 0.20 %	Injection
Hold Pressure	50.0 - 100 MPa	7250 - 14500 psi	Range, Injection

Descriptive Properties			
Additives	Flame retardant Release agent		
Drying Recommended	yes		
FMVSS Class	DNI		
ISO designation	ISO 16396-PA66,MD30 FR(17),M1F1GNR,S14-060		
Max. screw tangential speed (m/s)	0.2		
Part Marking Code	>PA66-MD30FR(17)<		
Polymer	PA66-MD30 FR(17)		
Processing Hold Pressure Time (s/mm)	3		
Resin Identification	PA66-MD30FR(17)		