

Celanese Zytel® FR7026V0F

Categories: Polymer; Thermoplastic; Nylon (Polyamide PA); Nylon 66 (PA66); Nylon 66, Unreinforced, Flame Retardant
 Material Notes: Unreinforced, Flame Retardant, Non-Halogenated, Heat Stabilized, Polyamide 66
 Former DuPont product acquired by Celanese in 2022.

Physical Properties	Metric	English	Comments
Density	1.16 g/cc	0.0419 lb/in ³	DAM; ISO 1183
Melt Density	1.03 g/cc @Temperature 280 °C	0.0372 lb/in ³ @Temperature 536 °F	
Water Absorption	8.0 % @Thickness 2.00 mm	8.0 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
	1.8 % @Thickness 2.00 mm, Time 86400 sec	1.8 % @Thickness 0.0787 in, Time 24.0 hour	Immersion; DAM; Sim. to ISO 62
Moisture Absorption	2.50 % @Thickness 2.00 mm	2.50 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Viscosity Number	160 cm ³ /g	1.60 dl/g	DAM; ISO 307, 1157, 1628
Linear Mold Shrinkage, Flow	0.0090 cm/cm	0.0090 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
Ball Indentation Hardness	110 MPa	16000 psi	H 358/30; DS; 50% RH; ISO 2039-1
Tensile Strength at Break	80.0 MPa	11600 psi	DAM; ISO 527-1/-2
Tensile Strength, Yield	55.0 MPa	7980 psi	50% RH; ISO 527-1/-2
Elongation at Break	10 %	10 %	DAM; ISO 527-1/-2
	30 %	30 %	Nominal; 50% RH; ISO 527-1/-2
Elongation at Yield	20 %	20 %	50% RH; ISO 527-1/-2
Tensile Modulus	2.00 GPa	290 ksi	50% RH; ISO 527-1/-2
	3.70 GPa	537 ksi	DAM; ISO 527-1/-2
Poissons Ratio	0.36	0.36	DAM
	0.40	0.40	50% RH
Izod Impact, Notched (ISO)	4.40 kJ/m ² @Temperature 23.0 °C	2.09 ft-lb/in ² @Temperature 73.4 °F	DAM; ISO 180/1A
Charpy Impact Unnotched	8.00 J/cm ² @Temperature 23.0 °C	38.1 ft-lb/in ² @Temperature 73.4 °F	DAM; ISO 179/1eU
	11.0 J/cm ² @Temperature 23.0 °C	52.3 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
	0.300 J/cm ² @Temperature -30.0 °C	1.43 ft-lb/in ² @Temperature -22.0 °F	DAM; ISO 179/1eA
	0.350 J/cm ² @Temperature 23.0 °C	1.67 ft-lb/in ² @Temperature 73.4 °F	DAM; ISO 179/1eA
	0.700 J/cm ² @Temperature 23.0 °C	3.33 ft-lb/in ² @Temperature 73.4 °F	50% RH; ISO 179/1eA

Electrical Properties	Metric	English	Comments
Surface Resistance	$\geq 1.00\text{e}+15 \text{ ohm}$	$\geq 1.00\text{e}+15 \text{ ohm}$	50% RH; IEC 62631-3-2
Dielectric Strength	31.0 kV/mm	787 kV/in	DAM; IEC 60243-1
Comparative Tracking Index	600 V	600 V	DAM; IEC 60112
	$\geq 600 \text{ V}$	$\geq 600 \text{ V}$	PLC 0; DAM; UL 746A

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	60.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature -40.0 - 23.0 $^\circ\text{C}$	33.3 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature -40.0 - 73.4 $^\circ\text{F}$	DAM; ISO 11359-1/-2
	65.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 23.0 - 55.0 $^\circ\text{C}$	36.1 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 73.4 - 131 $^\circ\text{F}$	DAM; ASTM E 831
	70.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 55.0 - 160 $^\circ\text{C}$	38.9 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 131 - 320 $^\circ\text{F}$	DAM; ISO 11359-1/-2
CTE, linear, Transverse to Flow	70.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature -40.0 - 23.0 $^\circ\text{C}$	38.9 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature -40.0 - 73.4 $^\circ\text{F}$	DAM; ISO 11359-1/-2
Specific Heat Capacity	2.59 J/g $\cdot^\circ\text{C}$ @Temperature 280 $^\circ\text{C}$	0.619 BTU/lb $\cdot^\circ\text{F}$ @Temperature 536 $^\circ\text{F}$	Melt
Thermal Conductivity	0.170 W/m-K @Temperature 280 $^\circ\text{C}$	1.18 BTU-in/hr-ft $^2\cdot^\circ\text{F}$ @Temperature 536 $^\circ\text{F}$	Melt
Melting Point	260 $^\circ\text{C}$	500 $^\circ\text{F}$	10 $^\circ\text{C}/\text{min}$; DAM; ISO 11357-1/-3
Hot Ball Pressure Test	220 $^\circ\text{C}$	428 $^\circ\text{F}$	DS; DAM; IEC 60695-10-2
Deflection Temperature at 0.46 MPa (66 psi)	230 $^\circ\text{C}$	446 $^\circ\text{F}$	DAM; ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	80.0 $^\circ\text{C}$	176 $^\circ\text{F}$	DAM; ISO 75-1/-2
Glass Transition Temp, Tg	20.0 $^\circ\text{C}$	68.0 $^\circ\text{F}$	10 $^\circ\text{C}/\text{min}$; 50% RH; ISO 11357-1/-2
	80.0 $^\circ\text{C}$	176 $^\circ\text{F}$	10 $^\circ\text{C}/\text{min}$; DAM; ISO 11357-1/-2
Flammability, UL94	V-0 @Thickness 0.820 mm	V-0 @Thickness 0.0323 in	DAM; IEC 60695-11-10
	V-0 @Thickness 1.50 mm	V-0 @Thickness 0.0591 in	DAM; IEC 60695-11-10
Oxygen Index	39 %	39 %	DAM; ISO 4589-1/-2
Glow Wire Ignition Temperature	960 $^\circ\text{C}$ @Thickness 0.400 mm	1760 $^\circ\text{F}$ @Thickness 0.0157 in	DAM; IEC 60695-2-12
	960 $^\circ\text{C}$ @Thickness 0.750 mm	1760 $^\circ\text{F}$ @Thickness 0.0295 in	DAM; IEC 60695-2-13
	960 $^\circ\text{C}$ @Thickness 1.50 mm	1760 $^\circ\text{F}$ @Thickness 0.0591 in	DAM; IEC 60695-2-13
	960 $^\circ\text{C}$ @Thickness 3.00 mm	1760 $^\circ\text{F}$ @Thickness 0.118 in	DAM; IEC 60695-2-13

Glow Wire Flammability Index	960 °C @Thickness 0.400 mm	1760 °F @Thickness 0.0157 in	DAM; IEC 60695-2-12
	960 °C @Thickness 0.750 mm	1760 °F @Thickness 0.0295 in	DAM; IEC 60695-2-12
	960 °C @Thickness 1.50 mm	1760 °F @Thickness 0.0591 in	DAM; IEC 60695-2-12
	960 °C @Thickness 3.00 mm	1760 °F @Thickness 0.118 in	DAM; IEC 60695-2-12

Processing Properties	Metric	English	Comments
Melt Temperature	280 °C	536 °F	Optimum, Injection
	270 - 290 °C	518 - 554 °F	Range, Injection
Mold Temperature	70.0 °C	158 °F	Optimum, Injection
	50.0 - 90.0 °C	122 - 194 °F	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 Non-halogenated/Red phosphorous free flame retardant Release agent		
Drying Recommended	yes		Injection
FMVSS Class	DNI		ISO 3795 (FMVSS 302)
ISO designation	ISO 16396-PA66,FR(30),M1F1G1NR,S14-040		
Max. screw tangential speed (m/s)	0.2		Injection
Odor Class	5		VDA 270
Part Marking Code	>PA66-FR(30)<		ISO 11469
Polymer	PA66 FR(30)		
Processing Hold Pressure Time (s/mm)	3		Injection
Resin Identification	PA66-FR(30)		ISO 1043