

# Celanese Zytel® 80G14A

Categories: Polymer; Thermoplastic; Nylon (Polyamide PA); Nylon 66 (PA66); Nylon 66, 10% Glass Fiber Filled  
 Material Notes: 14% Glass Reinforced, Toughened, Polyamide 66  
 Former DuPont product acquired by Celanese in 2022.

Physical Properties	Metric	English	Comments
Density	1.19 g/cc	0.0430 lb/in <sup>3</sup>	DAM; ISO 1183
Water Absorption	6.2 % @Thickness 2.00 mm	6.2 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Moisture Absorption	1.80 % @Thickness 2.00 mm	1.80 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Linear Mold Shrinkage, Flow	0.0040 cm/cm	0.0040 in/in	DAM; ISO 294-4, 2577
Linear Mold Shrinkage, Transverse	0.0080 cm/cm	0.0080 in/in	DAM; ISO 294-4, 2577

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	66.0 MPa	9570 psi	50% RH; ISO 527-1/-2
	108 MPa	15700 psi	DAM; ISO 527-1/-2
Elongation at Break	3.8 %	3.8 %	DAM; ISO 527-1/-2
	10 %	10 %	50% RH; ISO 527-1/-2
Tensile Modulus	3.40 GPa	493 ksi	50% RH; ISO 527-1/-2
	4.80 GPa	696 ksi	DAM; ISO 527-1/-2
Flexural Modulus	4.40 GPa	638 ksi	DAM; ISO 178
Poissons Ratio	0.36	0.36	DAM
	0.37	0.37	50% RH
Izod Impact, Notched (ISO)	6.00 kJ/m <sup>2</sup> @Temperature -40.0 °C	2.86 ft-lb/in <sup>2</sup> @Temperature -40.0 °F	DAM; ISO 180/1A
	13.0 kJ/m <sup>2</sup> @Temperature 23.0 °C	6.19 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	DAM; ISO 180/1A
Charpy Impact Unnotched	7.00 J/cm <sup>2</sup> @Temperature 23.0 °C	33.3 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	DAM; ISO 179/1eU
	7.10 J/cm <sup>2</sup> @Temperature -30.0 °C	33.8 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	50% RH; ISO 179/1eU
	7.60 J/cm <sup>2</sup> @Temperature 23.0 °C	36.2 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	50% RH; ISO 179/1eU
	9.00 J/cm <sup>2</sup> @Temperature -30.0 °C	42.8 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	DAM; ISO 179/1eU
Charpy Impact, Notched	0.600 J/cm <sup>2</sup> @Temperature -40.0 °C	2.86 ft-lb/in <sup>2</sup> @Temperature -40.0 °F	50% RH; ISO 179/1eA
	0.700 J/cm <sup>2</sup> @Temperature -30.0 °C	3.33 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	50% RH; ISO 179/1eA
	1.00 J/cm <sup>2</sup> @Temperature -30.0 °C	4.76 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	DAM; ISO 179/1eA
	1.30 J/cm <sup>2</sup> @Temperature 23.0 °C	6.19 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	DAM; ISO 179/1eA
	1.70 J/cm <sup>2</sup> @Temperature 23.0 °C	8.09 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	50% RH; ISO 179/1eA
Tensile Creep Modulus, 1 hour	3100 MPa	450000 psi	1h; 50% RH; ISO 899-1
Tensile Creep Modulus, 1000 hours	2500 MPa	363000 psi	1000h; 50% RH; ISO 899-1

Electrical Properties	Metric	English	Comments
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Volume Resistivity	1.00e+12 ohm-cm	1.00e+12 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+14 ohm	1.00e+14 ohm	50% RH; IEC 62631-3-2
Dielectric Constant	3.5 @Frequency 1e+6 Hz	3.5 @Frequency 1e+6 Hz	DAM; IEC 62631-2-1
	3.8 @Frequency 100 Hz	3.8 @Frequency 100 Hz	DAM; IEC 62631-2-1
	3.9 @Frequency 1e+6 Hz	3.9 @Frequency 1e+6 Hz	50% RH; IEC 62631-2-1
	7.3 @Frequency 100 Hz	7.3 @Frequency 100 Hz	50% RH; IEC 62631-2-1
Dielectric Strength	36.0 kV/mm	914 kV/in	DAM; IEC 60243-1
	36.5 kV/mm	927 kV/in	50% RH; IEC 60243-1
Dissipation Factor	0.018 @Frequency 100 Hz	0.018 @Frequency 100 Hz	50% RH; IEC 62631-2-1
	0.027 @Frequency 100 Hz	0.027 @Frequency 100 Hz	DAM; IEC 62631-2-1
	0.058 @Frequency 1e+6 Hz	0.058 @Frequency 1e+6 Hz	50% RH; IEC 62631-2-1
	0.058 @Frequency 1e+6 Hz	0.058 @Frequency 1e+6 Hz	DAM; IEC 62631-2-1
Comparative Tracking Index	600 V	600 V	DAM; IEC 60112

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	40.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	22.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	DAM; ISO 11359-1/-2
CTE, linear, Transverse to Flow	120 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	66.7 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	DAM; ISO 11359-1/-2
Specific Heat Capacity	1.24 J/g $^\circ\text{C}$	0.296 BTU/lb $^\circ\text{F}$	Solid
	2.35 J/g $^\circ\text{C}$ @Temperature 295 $^\circ\text{C}$	0.562 BTU/lb $^\circ\text{F}$ @Temperature 563 $^\circ\text{F}$	Melt
Thermal Conductivity	0.190 W/m-K @Temperature 295 $^\circ\text{C}$	1.32 BTU-in/hr-ft $^2\cdot^\circ\text{F}$ @Temperature 563 $^\circ\text{F}$	Melt
Melting Point	263 $^\circ\text{C}$	505 $^\circ\text{F}$	10 $^\circ\text{C}/\text{min}$ ; DAM; ISO 11357-1/-3
Deflection Temperature at 0.46 MPa (66 psi)	258 $^\circ\text{C}$	496 $^\circ\text{F}$	DAM; ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	240 $^\circ\text{C}$	464 $^\circ\text{F}$	DAM; ISO 75-1/-2
Vicat Softening Point	215 $^\circ\text{C}$	419 $^\circ\text{F}$	50 $^\circ\text{C}/\text{h}$ , 50N; DAM; ISO 306
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
	75.0 $^\circ\text{C}$	167 $^\circ\text{F}$	10 $^\circ\text{C}/\text{min}$ ; DAM; ISO 11357-1/-2
Flammability, UL94	HB @Thickness 0.750 mm	HB @Thickness 0.0295 in	DAM; IEC 60695-11-10

	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	DAM; IEC 60695-11-10
Flame Spread	44.0 mm/min @Thickness 1.00 mm	1.73 in/min @Thickness 0.0394 in	DS; ISO 3795 (FMVSS 302)
Oxygen Index	21 %	21 %	DS; DAM; ISO 4589-1/-2

Processing Properties	Metric	English	Comments
Melt Temperature	295 °C	563 °F	Optimum, Injection
	285 - 305 °C	545 - 581 °F	Range, Injection
Mold Temperature	50.0 - 100 °C	122 - 212 °F	Injection
	80.0 °C	176 °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	Release agent		
Drying Recommended	yes		Injection
Eff. thermal diffusivity (m <sup>2</sup> /s)	8.09E-08		
Emission of organic compounds (µgC/g)	3.9		VDA 277
FMVSS Class	B		ISO 3795 (FMVSS 302)
ISO designation	ISO 16396-PA66-I,GF14,M1CGR,S14-050		
Max. screw tangential speed (m/s)	0.2		Injection
Odor Class	4.5		VDA 270
Part Marking Code	>PA66-IGF14<		ISO 11469
Polymer	PA66-I-GF14		
Processing Hold Pressure Time (s/mm)	3		Injection
Resin Identification	PA66-IGF14		ISO 1043