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Celanese Zytel® ST7301

Categories:Polymer; Thermoplastic; Nylon (Polyamide PA); Nylon 6 (PA6); Nylon 6, Impact Grade
Material Notes:Super Toughened Polyamide 6
Former DuPont product acquired by Celanese in 2022.

Physical Properties	Metric	English	Comments
Density	1.06 g/cc	0.0383 lb/in³	DAM; ISO 1183
Melt Density	0.960 g/cc @Temperature 270 °C	0.0347 lb/in³ @Temperature 518 °F	
Moisture Absorption	2.70 % @Thickness 2.00 mm	2.70 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Viscosity Number	160 cm³/g	1.60 dl/g	Sulfuric acid 96%; ISO 307, 1157, 1628
Linear Mold Shrinkage, Flow	0.010 cm/cm	0.010 in/in	DAM; ISO 294-4, 2577
	0.0010 cm/cm @Treatment Temp. 80.0 °C, Time 173000 sec	0.0010 in/in @Treatment Temp. 176 °F, Time 48.0 hour	Postmolding shrinkage; DAM; ISO 294-4
Linear Mold Shrinkage, Transverse	0.010 cm/cm	0.010 in/in	DAM; ISO 294-4, 2577
	0.0010 cm/cm @Treatment Temp. 80.0 °C, Time 173000 sec	0.0010 in/in @Treatment Temp. 176 °F, Time 48.0 hour	Postmolding shrinkage; DAM; ISO 294-4

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	95.0 MPa	13800 psi	H 358/30; DS; DAM; ISO 2039-1
Tensile Strength, Yield	29.0 MPa	4210 psi	50% RH; ISO 527-1/-2
	48.0 MPa	6960 psi	DAM; ISO 527-1/-2
Elongation at Break	>= 50 %	>= 50 %	Nominal; 50% RH; ISO 527-1/-2
	>= 50 %	>= 50 %	Nominal; DAM; ISO 527-1/-2
Elongation at Yield	4.0 %	4.0 %	DAM; ISO 527-1/-2
	30 %	30 %	50% RH; ISO 527-1/-2
Tensile Modulus	0.550 GPa	79.8 ksi	50% RH; ISO 527-1/-2
	1.80 GPa	261 ksi	DAM; ISO 527-1/-2
Flexural Strength	32.0 MPa @Strain 3.5 %	4640 psi @Strain 3.5 %	50% RH; ISO 178
	53.0 MPa @Strain 3.5 %	7690 psi @Strain 3.5 %	DAM; ISO 178
Flexural Modulus	0.550 GPa	79.8 ksi	50% RH; ISO 178
	1.70 GPa	247 ksi	DAM; ISO 178
Poissons Ratio	0.41	0.41	DAM

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	0.47	0.47	50% RH
Izod Impact, Notched (ISO)	13.0 kJ/m² @Temperature -40.0 °C	6.19 ft-lb/in² @Temperature -40.0 °F	50% RH; ISO 180/1A
	14.0 kJ/m² @Temperature -30.0 °C	6.66 ft-lb/in² @Temperature -22.0 °F	DAM; ISO 180/1A
	15.0 kJ/m² @Temperature -30.0 °C	7.14 ft-lb/in² @Temperature -22.0 °F	50% RH; ISO 180/1A
	15.0 kJ/m² @Temperature -40.0 °C	7.14 ft-lb/in² @Temperature -40.0 °F	DAM; ISO 180/1A
	60.0 kJ/m² @Temperature 23.0 °C	28.6 ft-lb/in² @Temperature 73.4 °F	DAM; ISO 180/1A
	95.0 kJ/m² @Temperature 23.0 °C	45.2 ft-lb/in² @Temperature 73.4 °F	50% RH; ISO 180/1A
Charpy Impact Unnotched	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	50% RH; ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	DAM; ISO 179/1eU
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	50% RH; ISO 179/1eU
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	DAM; ISO 179/1eU
Charpy Impact, Notched	1.70 J/cm² @Temperature -40.0 °C	8.09 ft-lb/in² @Temperature -40.0 °F	50% RH; ISO 179/1eA
	1.70 J/cm² @Temperature -30.0 °C	8.09 ft-lb/in² @Temperature -22.0 °F	DAM; ISO 179/1eA
	1.80 J/cm² @Temperature -30.0 °C	8.57 ft-lb/in² @Temperature -22.0 °F	50% RH; ISO 179/1eA
	1.80 J/cm² @Temperature -40.0 °C	8.57 ft-lb/in² @Temperature -40.0 °F	DAM; ISO 179/1eA
	8.00 J/cm² @Temperature 23.0 °C	38.1 ft-lb/in² @Temperature 73.4 °F	DAM; ISO 179/1eA
	12.0 J/cm² @Temperature 23.0 °C	57.1 ft-lb/in² @Temperature 73.4 °F	50% RH; ISO 179/1eA