

## Material Data Sheet: Z-ULTRAT

Physical Properties	Metric	English	Comments
Specific Gravity	1.08 g/cm <sup>3</sup>	9.013 lbs/gal	ASTM D792
Density	1.08 g/cm <sup>3</sup>	9.013 lbs/gal	ISO 1183
Maximum Moisture Content	0.001	0.001	
Linear Mold Shrinkage, Flow	0.0050 - 0.0080 cm/cm Thickness 3.20 mm	0.0050 - 0.0080 in/in Thickness 0.126 in	ASTM D955
Melt Flow	13.7 g/10 min Load 3.80 kg, Temperature 230 °C	0.03 lb/10 min Load 8.38 lb, Temperature 446 °F	ASTM D1238 (I)
	12 g/10 min Load 5 kg, Temperature 220 °C	0.03 lb/10 min Load 11 lb, Temperature 428 °F	
	42 g/10 min Load 10 kg, Temperature 220 °C	0.09 lb/10 min Load 22 lb, Temperature 428 °F	ISO 1183
Melt Viscosity	1870 1000 sec <sup>-1</sup> , Temperature 240 °C	1870 1000 sec <sup>-1</sup> , Temperature 464 °T	ASTM D3825 (I)
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	110	110	ASTM D785
Tensile Strength, Yield	42 MPa Thickness 3.20 mm	6091 psi Thickness 0.126 in	5mm/min; ASTM D638
	42 MPa Thickness 3.20 mm	6091 psi Thickness 0.126 in	50mm/min; ISO 527
Tensile Strength, Break	30 MPa Thickness 3.20 mm	4351 psi Thickness 0.126 in	5mm/min; ASTM D638
	30 MPa Thickness 3.20 mm	4351 psi Thickness 0.126 in	50mm/min; ISO 527
Elongation at Break	21 % Thickness 3.20 mm	21 % Thickness 0.126 in	5mm/min; ASTM D638
	21 % Thickness 3.20 mm	21 % Thickness 0.126 in	50mm/min;
Elongation at Yield	2.3 % Thickness 3.20 mm	2.3 % Thickness 0.126 in	5mm/min; ASTM D638
	2.6 % Thickness 3.20 mm	2.6 % Thickness 0.126 in	50mm/min; ISO 527

Tensile Modulus	1.95 GPa Thickness 3.20 mm	283 ksi Thickness 0.126 in	1mm/min; ASTM D638
	1.95 GPa Thickness 3.20 mm	283 ksi Thickness 0.126 in	1mm/min; ISO 527
Flexural Yield Strength	50 MPa Thickness 3.20 mm	7252 psi Thickness 0.126 in	1.3mm/min; ASTM D790
	51 MPa Thickness 3.20 mm	7397 psi Thickness 0.126 in	2mm/min; ISO 178
Flexural Modulus	2.02 GPa Thickness 3.20 mm	293 ksi Thickness 0.126 in	1.3mm/min; ASTM D790
	2.03 GPa Thickness 3.20 mm	294 ksi Thickness 0.126 in	2mm/min; ISO 178
Izod Impact, Notched	0.60 J/cm Thickness 3.20 mm, Temperature -30.0 °C	1.05 ft-lb/in Thickness 0.126 in, Temperature -22.0 °F	ASTM D256
	1.8 J/cm Thickness 3.20 mm, Temperature 23.0 °C	3.3 ft-lb/in Thickness 0.126 in, Temperature 73.0 °F	
	5 kJ/m2 80x10x4 mm, Temperature -30.0 °C	3.2 ft-lb/in <sup>2</sup> 3.15x0.394x0.157 in, Tempe- rature -22.0 °F	ISO 180/1A
	12 kJ/m2 80x10x4 mm, Temperature 23.0 °C	7.7 ft-lb/in <sup>2</sup> 3.15x0.394x0.157 in, Temperature 73.0 °F	
Thermal Properties	Metric	English	Comments
Vicat Softening Point	128.0 °C Load 5.00 kg	262 °F Load 11.0 lb	B/50; ASTM D 1525
	128.0 °C Load 5.00 kg	262 °F Load 11.0 lb	B/50; ISO 306
	130.0 °C Load 5.00 kg	266 °F Load 11.0 lb	B/120; ISO 306
UL RTI, Electrical	60.0 °C Thickness ≥1.50 mm	140 °F Thickness ≥0.0591 in	
	60.0 °C Thickness ≥3.00 mm	140 °F Thickness ≥0.118 in	
UL RTI, Mechanical with Impact	60.0 °C Thickness ≥1.50 mm	140 °F Thickness ≥0.0591 in	
	60.0 °C Thickness ≥3.00 mm	140 °F Thickness ≥0.118 in	

UL RTI, Mechanical without Impact	60.0 °C Thickness ≥1.50 mm	140 °F Thickness ≥0.0591 in	
	60.0 °C Thickness ≥3.00 mm	140 °F Thickness ≥0.118 in	
Flammability, UL94	HB Thickness ≥1.60 mm	HB Thickness ≥0.0630 in	
	HB Thickness ≥3.20 mm	HB Thickness ≥0.126 in	
Deflection Temperature at 0.45 MPa (66 psi)	112 °C Thickness 3.20 mm	234 °F Thickness 0.126 in	Unannealed; ASTM D648
Deflection Temperature at 1.82 MPa (264 psi)	98 °C Thickness 3.20 mm	208 °F Thickness 0.126 in	Unannealed; ASTM D648
Deflection Temperature at 0.45 MPa (66 psi)	102 °C 120x10x4 mm sp=100 mm	216 °F 4.72x0.394x0.157 in sp=3,937 in	ISO 75/Be
Deflection Temperature at 1.8 MPa (264 psi)	90 °C 120x10x4 mm sp=100 mm	194 °F 4.72x0.394x0.157 in sp=3,937 in	ISO 75/Ae

The information presented are typical values intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Final properties of the material can be impacted (+/-) by part design, end-use conditions, test conditions, etc. Actual values will vary with build conditions. Product specifications are subject to change without notice.

The performance characteristics of these materials may vary according to application, operating conditions, or end-use. Each user is responsible for determining that the Zortrax material is safe, lawful and technically suitable for the intended application, as well as for identifying the proper disposal (or recycling) method consistent with applicable environmental laws and regulations. Zortrax makes no warranties of any kind, express or implied including but not limited to the warranties of merchantability, fitness for a particular use.

**Contact**

Office: [office@zortrax.com](mailto:office@zortrax.com)  
 Sales Department: [sales@zortrax.com](mailto:sales@zortrax.com)  
 Support Center: [support@zortrax.com](mailto:support@zortrax.com)

**Zortrax S.A.**

Wyszynskiego 1/219  
 10-457 Olsztyn, Poland  
 NIP: 7393864289  
 REGON: 281551179

Entered in the Register of Entrepreneurs of the National Court Register kept by the District Court in Olsztyn, VIII Commercial Division of the National Court Register, under KRS number 0000564079, with a share capital of PLN 6 962 500 paid in full.