

MATERIAL DATA SHEET



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Material Data Sheet: Z-HIPS

| Physical Properties | Metric | English | Comments |
|-----------------------------|---|---|----------------|
| Specific Gravity | 1.04 g/cm ³ | 8.679 lbs/gal | ASTM D792 |
| Maximum Moisture Content | 0.010 | 0.010 | |
| Linear Mold Shrinkage, Flow | 0.0040 - 0.0080 cm/cm Thickness 3.20 mm | 0.0040 - 0.0080 in/in Thickness 0.126 in | ASTM D955 |
| Melt Flow | 6.0 g/10 min Load 5.00 kg, Temperature 200 °C | 6.0 g/10 min Load 11.0 lb, Temperature 392 °F | ASTM D1238 (G) |
| | 16 g/10 min Load 3.80 kg, Temperature 230 °C | 16 g/10 min Load 8.38 lb, Temperature 446 °F | ASTM D1238 (I) |
| | 69 g/10 min Load 10.0 kg, Temperature 220 °C | 69 g/10 min Load 22.0 lb, Temperature 428 °F | ASTM D1238 (G) |

| Mechanical Properties | Metric | English | Comments |
|-------------------------|--|---|------------------------|
| Hardness, Rockwell R | 109 | 109 | ASTM D785 |
| Tensile Strength, Yield | 34.3 MPa Thickness 3.20 mm | 4980 psi Thickness 0.126 in | 50mm/min; ASTM D638 |
| Elongation at Break | 79 % Thickness 3.20 mm | 79 % Thickness 0.126 in | 50mm/min; ASTM D638 |
| Elongation at Yield | 4.0 % Thickness 3.20 mm | 4.0 % Thickness 0.126 in | 50mm/min; ASTM D638 |
| Tensile Modulus | 2.26 GPa Thickness 3.20 mm | 327 ksi Thickness 0.126 in | 1mm/min; ASTM D638 |
| Flexural Yield Strength | 53.9 MPa Thickness 3.20 mm | 7820 psi Thickness 0.126 in | 15mm/min; ASTM D790 |
| Flexural Modulus | 2.67 GPa Thickness 3.20 mm | 387 ksi Thickness 0.126 in | 15mm/min; ASTM D790 |
| Izod Impact, Notched | 0.490 J/cm Thickness 3.20 mm, Temperature -30.0 °C | 0.918 ft-lb/in Thickness 0.126 in, Temperature -22.0 °F | ASTM D256 |

| Electrical Properties | Metric | English | Comments |
|---|-------------------------------|--------------------------------|-----------------------|
| Volume Resistivity | 1.00e+14 ohm-cm | 1.00e+14 ohm-cm | |
| Dielectric Strength | 40.0 kV/mm | 1020 kV/in | |
| Arc Resistance | 120 - 180 sec | 120 - 180 sec | ASTM D495 |
| Thermal Properties | Metric | English | Comments |
| Deflection Temperature at 0.46 MPa (66 psi) | 92.0 °C Thickness 6.40 mm | 198 °F Thickness 0.252 in | Unannealed; ASTM D648 |
| Deflection Temperature at 1.8 MPa (264 psi) | 83.0 °C Thickness 6.40 mm | 181 °F Thickness 0.252 in | Unannealed; ASTM D648 |
| Vicat Softening Point | 95.0 °C Load 5.00 kg | 203 °F Load 11.0 lb | 50°C/h; ASTM D1525 |
| UL RTI, Electrical | 50.0 °C Thickness ≥1.50 mm | 122 °F Thickness ≥0.0591 in | |
| | 50.0 °C Thickness ≥3.00 mm | 122 °F Thickness ≥0.118 in | |
| UL RTI, Mechanical with Impact | 50.0 °C Thickness ≥1.50 mm | 122 °F Thickness ≥0.0591 in | |
| | 50.0 °C Thickness ≥3.00 mm | 122 °F Thickness ≥0.118 in | |
| UL RTI, Mechanical without Impact | 50.0 °C Thickness ≥1.50 mm | 122 °F Thickness ≥0.0591 in | |
| | 50.0 °C Thickness ≥3.00 mm | 122 °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 | |

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.

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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 7 462 500 paid in full.