

TECASINT 2011 brown - Stock Shapes (rods, plates, tubes)

Chemical Designation

PI (Polyimide)

Colour

brown

Density

1.38 g/cm³

Main features

- very good thermal stability
- high thermal and mechanical capacity
- low outgassing
- very good electrical insulation
- resistance against high energy radiation
- good chemical resistance
- high creep resistance
- sensitive to hydrolysis in higher thermal range

Target Industries

- aircraft and aerospace technology
- semiconductor technology
- precision engineering
- electrical engineering
- medical technology
- electronics

| Mechanical properties | condition | value | | test method | comment |
|---------------------------------------|------------------|----------------------|-------------------------------|--------------------|--------------------|
| Modulus of elasticity (tensile test) | @ 73 °F | 681,500 | psi | ASTM D 638 | |
| Tensile strength at yield | @ 73 °F | 17,110 | psi | ASTM D 638 | |
| Elongation at break | @ 73 °F | 4.4 | % | ASTM D 638 | |
| Flexural strength | @ 73 °F | 25,700 | psi | ASTM D 790 | |
| Modulus of elasticity (flexural test) | @ 73 °F | 522,000 | psi | ASTM D 790 | |
| Impact strength (Charpy) | @ 73 °F, notched | 41.8 | ft-lbs/in | DIN EN ISO 179-1eA | |
| Thermal properties | condition | value | | test method | comment |
| Deflection temperature | @264 psi | >600 | °F | ASTM D 648 | (1) per ASTM E1269 |
| Service temperature | Long Term | 536 | °F | - | |
| Service temperature | Intermittent | 626 | °F | - | |
| Thermal expansion (CLTE) | | 3.0*10 ⁻⁵ | in/in/°F | ASTM D 696 | |
| Specific heat | | 0.221 | BTU/lb-F° | - | 1) |
| Thermal conductivity | | 1.53 | BTU-in/hr-ft ² -°F | ASTM C 177 | |
| Electrical properties | condition | value | | test method | comment |
| surface resistivity | | 5.0*10 ¹⁵ | Ω/square | ASTM D 257 | |
| Volume resistivity | | 8.0*10 ¹⁵ | Ω*cm | ASTM D 257 | |
| Dielectric strength | | 554 | V/mil | ASTM D 149 | |
| Dissipation factor | @ 60 Hz, 73 °F | 0.003 | | - | |
| Dielectric constant | @ 1 MHz | 4.2 | | ASTM D 150 | |
| Other properties | condition | value | | test method | comment |
| Moisture absorption | @ 24 hrs, 73 °F | 0.24 | % | ASTM D 570 | |
| Flammability (UL94) | | V0 | | - | |

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