

TECAPEI™ natural (Ultem® 1000 series) - Thin Gauge (sheet, coil, strip)

Chemical Designation

PEI (Polyetherimide)

Colour

amber transparent

Density

1.27 g/cm³

Main features

- high dielectric strength
- inherent flame retardant
- low smoke emissions
- easily machinable to tight tolerance
- high thermal and mechanical capacity
- flame retardant according to UL94 V-0

Target Industries

- aircraft and aerospace technology
- automotive industry
- electronics
- medical technology
- semiconductor technology
- food engineering
- food processing

| Mechanical properties | condition | value | unit | test method | comment |
|---------------------------------------|----------------------|------------------------|-------------------------------|-------------|-------------------------------------|
| Modulus of elasticity (tensile test) | @ 73 °F | 470,000 | psi | ASTM D 638 | (1) Extruded data thickness > 0.25" |
| Tensile strength at yield | @ 73 °F | 16,200 | psi | ASTM D 638 | (2) Extruded data thickness > 0.25" |
| Elongation at break (tensile test) | @ 73 °F | 40 | % | ASTM D 638 | (3) Extruded data thickness > 0.25" |
| Flexural strength | @ 73 °F | 28,000 | psi | ASTM D 790 | (4) Extruded data thickness > 0.25" |
| Modulus of elasticity (flexural test) | @ 73 °F | 475,000 | psi | ASTM D 790 | |
| Compression strength | @ 10% strain | 21,500 | psi | ASTM D 695 | 1) |
| Compression strength | @ 1 % strain | 2,200 | psi | ASTM D 695 | 2) |
| Compression modulus | | 480,000 | psi | ASTM D 695 | 3) |
| Notched impact strength (Izod) | @ 73 °F | 0.60 | ft-lbs/in | ASTM D 256 | 4) |
| Rockwell hardness | M Scale | 111 | | ASTM D 785 | |
| Thermal properties | condition | value | unit | test method | comment |
| Vicat softening point | | 426 | °F | ASTM D 1525 | 1) |
| Deflection temperature | @ 264 psi | 394 | °F | ASTM D 648 | 2) |
| Deflection temperature | @ 66 psi | 410 | °F | ASTM D 648 | 3) |
| Service temperature | short term | 392 | °F | - | 4) |
| Service temperature | Long Term | 338 | °F | - | 5) |
| Thermal expansion (CLTE) | | 3.1*10 ⁻⁵ | in/in/°F | ASTM D 696 | 6) |
| Thermal conductivity | | 1.5 | BTU-in/hr-ft ² -°F | ASTM D 2214 | 7) |
| Electrical properties | condition | value | unit | test method | comment |
| volume resistance | 1/16 | 1.0 x 10 ¹⁷ | Ω*cm | ASTM D 257 | 1) |
| Dielectric strength | In Oil | 709 | V/mil | ASTM D 149 | 2) |
| Dielectric strength | In Air | 830 | V/mil | ASTM D 149 | 3) |
| Dissipation factor | 1 kHz, 50% RH, 73 °F | 0.0013 | | ASTM D 150 | 4) |
| Dielectric constant | 1 kHz, 50% RH | 3.15 | | ASTM D 150 | 5) |
| Other properties | condition | value | unit | test method | comment |
| Moisture absorption | @ 24 hrs, 73 °F | 0.25 | % | ASTM D 570 | 1) |
| Moisture absorption | @ saturation, 73 °F | 1.25 | % | ASTM D 570 | 2) |
| Flammability (UL94) | | V0 | | - | 3) |

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