

TECAPEI™ natural (Sabic Ultem® 1000 series) - Stock Shapes (rods, plates, tubes)

Chemical Designation

PEI (Polyetherimide)

Colour

amber transparent 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 | | test method | comment |
|---------------------------------------|--------------|---------|-----------|-------------|---------|
| Modulus of elasticity (tensile test) | @ 73 °F | 430,000 | psi | ASTM D 638 | |
| Tensile strength at break | @ 73 °F | 17,500 | psi | ASTM D 638 | |
| Elongation at yield | @ 73 °F | 7 | % | ASTM D 638 | |
| Elongation at break | @ 73 °F | 40 | % | ASTM D 638 | |
| Flexural strength | @ 73 °F | 23,000 | psi | ASTM D 790 | |
| Modulus of elasticity (flexural test) | @ 73 °F | 480,000 | psi | ASTM D 790 | |
| Compression strength | @ 10% strain | 21,000 | psi | ASTM D 695 | |
| Compression strength | @ 1 % strain | 3,500 | psi | ASTM D 695 | |
| Compression modulus | | 480,000 | psi | ASTM D 695 | |
| Notched impact strength (Izod) | @ 73 °F | 0.60 | ft-lbs/in | ASTM D 256 | |
| Rockwell hardness | M Scale | 110 | | ASTM D 785 | |
| Rockwell hardness | R Scale | 126 | | ASTM D 785 | |

| Thermal properties | condition | value | | test method | comment |
|--------------------------|------------|----------------------|-------------------------------|-------------|---|
| Vicat softening point | | 426 | °F | ASTM D 1525 | 1) (1) Injection molded data |
| Deflection temperature | @264 psi | 394 | °F | ASTM D 648 | 2) (2) Injection molded data |
| Deflection temperature | @ 66 psi | 410 | °F | ASTM D 648 | 3) (3) Injection molded data |
| Service temperature | short term | 392 | °F | - | 4) (4) Data obtained from public source |
| Service temperature | Long Term | 338 | °F | - | 5) (5) Data obtained from public source |
| Thermal expansion (CLTE) | | 3.1*10 ⁻⁵ | in/in/°F | ASTM E 831 | 6) (6) Injection molded data |
| Thermal conductivity | | 1.5 | BTU-in/hr-ft ² -°F | ASTM D 2214 | 7) (7) Injection molded data |

| Electrical properties | condition | value | | test method | comment |
|-----------------------|----------------------|------------------------|-------|-------------|------------------------------|
| Volume resistivity | 1/16 | 1.0 x 10 ¹⁷ | Ω*cm | ASTM D 257 | 1) (1) injection molded data |
| Dielectric strength | In Oil | 709 | V/mil | ASTM D 149 | 2) (2) injection molded data |
| Dielectric strength | In Air | 830 | V/mil | ASTM D 149 | 3) (3) injection molded data |
| Dissipation factor | 1 kHz, 50% RH, 73 °F | 0.0013 | | ASTM D 150 | 4) (4) injection molded data |
| Dielectric constant | 1 kHz, 50% RH | 3.15 | | ASTM D 150 | 5) (5) Injection molded data |

| Other properties | condition | value | | test method | comment |
|---------------------|---------------------|-------|---|-------------|--|
| Moisture absorption | @ saturation, 73 °F | 1.25 | % | ASTM D 570 | 1) (1) Injection molded data |
| Moisture absorption | @ 24 hrs, 73 °F | .25 | % | ASTM D 570 | 2) (2) injection molded data |
| Flammability (UL94) | | V0 | | - | 3) (3) Injection molded data (0.75 mm thickness) |
| Flammability | 3 mm | pass | | FAR 25.853 | 4) (4) 3.0 mm specimen |

→ Resin specification:
ASTM D 5205-10 PEI0113
Shapes specification:
ASTM D7293-06 S-PEI0111

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**More info about
Ultem**

**More info about
PROP 65**



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