

Ultem® 1000 (PEI)

Polyphenylene ether (unfilled)

PLASTIM
ENGINEERING PLASTICS

PEI is an unreinforced amorphous high-performance thermoplastic, offering high mechanical, thermal and electrical properties. Including very high rigidity and exceptional creep resistance over a wide operating temperature range.

| Properties | Test method | Unit | Value |
|---------------------------------------|---------------------------|----------------------|--------------------|
| Mechanical | | | |
| Tensile strength | ISO 527 | MPa | 105 |
| Elongation at break | ISO 527 | % | 10 |
| Modulus of elasticity (tensile) | ISO 527 | MPa | 3400 |
| Modulus of elasticity (flexural) | ISO 178 | MPa | |
| Notch impact strength | ISO 179 | KJ / m ² | 3,5 |
| Flexural strength | ISO 178 | MPa | 167 |
| Compressive stress 5 % strain | ISO 604 | MPa | 137 |
| Compressive modulus | ISO 604 | MPa | |
| Shore hardness | ISO 868 | D | |
| Rockwell hardness | ISO 2039 | M | 115 |
| Ball indentation hardness | ISO 2039 | MPa | 170 |
| Thermal | | | |
| Melting temperature | ISO 3146 | °C | |
| Glass transition temperature (Tg) | ISO 11357 | °C | |
| Thermal conductivity | ISO 22007 | W / (m * K) | 0,22 |
| Coef. of linear thermal expansion | ISO 11359 | 10 ⁻⁴ / K | 0,2 |
| Long term service temperature | See note * | °C | -0 → 170 |
| Short term service temperature | See note * | °C | -50 → 200 |
| Heat deflection temperature | ISO 75 HDT/A | °C | 190 |
| Flammability | UL 94 | - | V0 |
| Flammability (oxygen index) | ISO 4589 | % | 47 |
| Electrical | | | |
| Dielectric constant at 1MHz | IEC 60250 | 10 ⁶ Hz | 3 |
| Dissipation factor at 1MHz | IEC 60250 | 10 ⁶ Hz | 0,002 |
| Volume resistivity | IEC 60093 | Ω * cm | ≥ 10 ¹³ |
| Surface resistivity | IEC 60093 | Ω | ≥ 10 ¹³ |
| Dielectric strength | IEC 60243 | kV / mm | 27 |
| Tracking resistance (CTI) | IEC 60112 | V | 175 |
| Additional Data | | | |
| Density | ISO 1183-1 | g / cm ³ | 1,27 |
| Water absorption (saturation) | ISO 62 | % | 1,35 |
| Humidity absorption (saturation) | ISO 62 | % | 0,75 |
| Food compliance | EEC | - | Yes |
| Food compliance | FDA | - | Yes |
| Coefficient of Friction (pin-on-disk) | ISO 7148-2 | - | 0,4 |
| Shapes | Rod (10 → 80 Ø) | Sheet (10 → 20) | - |
| Colour | Translucent Amber / Black | | |

- Ultem® offers chemical and hydrolysis resistance to withstand repeated autoclaving cycles.

The conditioned material values stated are average test results. The data provides information about our products and offers a guide for material selection. This does not provide an assurance of specific properties or the products suitability for a particular application.

It solely remains the customers responsibility to test and assess the suitability and compatibility of Plastim's products for its intended applications, processes and uses. The customer undertakes all liability in respect of the application, processing or use of the aforementioned information or product.

- * Long term service temperature are based on the thermal ageing of the polymer by oxidation, resulting in a decrease in mechanical capabilities
- * Short term service temperature only applies to very low mechanical stress for a very limited time only.

Properties can vary depending on the raw shape selected and the degree of crystallisation. The actual property values of a finished product may differ from the indicated values stated.