

ULTEM™ RESIN HU2100

DESCRIPTION

10% Glass fiber filled, standard flow Polyetherimide (Tg 217°C). US FDA and European Food Contact approved. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI); food contact compliant; Steam, Gamma, EtO, and E-beam sterilizable.

| GENERAL INFORMATION | |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Features | Flame Retardant, Chemical Resistance, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, IR Transparent, Low Moisture Absorption, UV-C resistant, Sustainable (bio-based offerings), Biocompatibility-ISO10993, Food contact, Healthcare/Formulation lock, Non Cl/Br flame retardant, Non halogenated flame retardant, Electroplatable, Autoclave/Steam sterilizable, Creep resistant, Dimensional stability, High stiffness/Strength, High temperature resistance, Sterilizable, No PFAS intentionally added, Additive Manufacturing |
| Fillers | Glass Fiber |
| Polymer Types | Polyetherimide (PEI) |
| Processing Techniques | Injection Molding |

| INDUSTRY | SUB INDUSTRY |
|------------------------|---------------------------------------------------------------------------------------------------|
| Hygiene and Healthcare | Pharmaceutical Packaging and Drug Delivery, Surgical devices, General Healthcare, Patient Testing |

TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|----------------------------------------------|----------------|-------------------|--------------|
| MECHANICAL ⁽¹⁾ | | | |
| Tensile Stress, yld, Type I, 5 mm/min | 114 | MPa | ASTM D638 |
| Tensile Stress, brk, Type I, 5 mm/min | 115 | MPa | ASTM D638 |
| Tensile Strain, yld, Type I, 5 mm/min | 6 | % | ASTM D638 |
| Tensile Strain, brk, Type I, 5 mm/min | 6 | % | ASTM D638 |
| Tensile Modulus, 5 mm/min | 4680 | MPa | ASTM D638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 160 | MPa | ASTM D790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 5500 | MPa | ASTM D790 |
| Tensile Stress, yield, 5 mm/min | 115 | MPa | ISO 527 |
| Tensile Stress, break, 5 mm/min | 115 | MPa | ISO 527 |
| Tensile Strain, yield, 5 mm/min | 4 | % | ISO 527 |
| Tensile Strain, break, 5 mm/min | 4 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 4500 | MPa | ISO 527 |
| Flexural Stress, break, 2 mm/min | 185 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 4500 | MPa | ISO 178 |
| IMPACT ⁽¹⁾ | | | |
| Izod Impact, notched, 23°C | 53 | J/m | ASTM D256 |
| Izod Impact, notched, -30°C | 53 | J/m | ASTM D256 |
| Instrumented Dart Impact Total Energy, 23°C | 10 | J | ASTM D3763 |
| Izod Impact, unnotched 80°10°4 +23°C | 30 | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80°10°4 -30°C | 30 | kJ/m ² | ISO 180/1U |
| Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm | 7 | kJ/m ² | ISO 179/1eA |

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|------------------------------------------------------|-----------------------------------|-------------------------|--------------|
| THERMAL ⁽¹⁾ | | | |
| Vicat Softening Temp, Rate B/50 | 223 | °C | ASTM D1525 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 205 | °C | ASTM D648 |
| CTE, -40°C to 40°C, flow | 3.0E-05 | 1/°C | ASTM E831 |
| CTE, -40°C to 40°C, xflow | 5.1E-05 | 1/°C | ASTM E831 |
| CTE, 23°C to 150°C, flow | 3.0E-05 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 150°C, xflow | 5.1E-05 | 1/°C | ISO 11359-2 |
| Vicat Softening Temp, Rate B/50 | 212 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 217 | °C | ISO 306 |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 205 | °C | ISO 75/Ae |
| Relative Temp Index, Elec ⁽²⁾ | 170 | °C | UL 746B |
| Relative Temp Index, Mech w/impact ⁽²⁾ | 170 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact ⁽²⁾ | 170 | °C | UL 746B |
| PHYSICAL ⁽¹⁾ | | | |
| Specific Gravity | 1.34 | - | ASTM D792 |
| Mold Shrinkage, flow, 3.2 mm ⁽³⁾ | 0.5 – 0.6 | % | SABIC method |
| Melt Flow Rate, 337°C/6.6 kgf | 7 | g/10 min | ASTM D1238 |
| Density | 1.34 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/saturated) | 1 | % | ISO 62-1 |
| Moisture Absorption (23°C / 50% RH) | 0.6 | % | ISO 62 |
| Melt Volume Rate, MVR at 360°C/5.0 kg | 9 | cm ³ /10 min | ISO 1133 |
| ELECTRICAL ⁽¹⁾ | | | |
| Dielectric Strength, in oil, 3.2 mm | 15 | kV/mm | IEC 60243-1 |
| Comparative Tracking Index | 150 | V | IEC 60112 |
| Comparative Tracking Index (UL) {PLC} ⁽²⁾ | 4 | PLC Code | UL 746A |
| Hot-Wire Ignition (HWI), PLC 1 ⁽²⁾ | ≥3 | mm | UL 746A |
| Hot-Wire Ignition (HWI), PLC 2 ⁽²⁾ | ≥1.5 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 3 ⁽²⁾ | ≥1.5 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 4 ⁽²⁾ | ≥3 | mm | UL 746A |
| High Voltage Arc Track Rate {PLC} ⁽²⁾ | 2 | PLC Code | UL 746A |
| Arc Resistance, Tungsten {PLC} ⁽²⁾ | 6 | PLC Code | ASTM D495 |
| FLAME CHARACTERISTICS ⁽²⁾ | | | |
| UL Yellow Card Link | E121562-502535 | - | - |
| UL Yellow Card Link 2 | E121562-102518191 | - | - |
| UL Recognized, 94-5VA Flame Class Rating | ≥1.9 | mm | UL 94 |
| UL Recognized, 94V-0 Flame Class Rating | ≥0.41 | mm | UL 94 |
| INJECTION MOLDING ⁽⁴⁾ | | | |
| Drying Temperature | 150 | °C | |
| Drying Time | 4 – 6 | Hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 370 – 410 | °C | |
| Nozzle Temperature | 350 – 405 | °C | |
| Front - Zone 3 Temperature | 360 – 415 | °C | |
| Middle - Zone 2 Temperature | 350 – 405 | °C | |

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|---------------------------|----------------|-------|--------------|
| Rear - Zone 1 Temperature | 340 – 395 | °C | |
| Hopper Temperature | 80 – 120 | °C | |
| Mold Temperature | 140 – 180 | °C | |

- (1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.
- (2) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.
- (3) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.
- (4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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