# ULTEM™ HU1004 resin

Polyether Imide

SABIC Innovative Plastics

## Message:

High Temperature, Transparent, Polyetherimide Blend with Improved Ductility and Enhanced Hydrostability. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI), food contact compliant. EtO and steam sterilizable.

| General Information | | | |
|---|---|---|---|
| UL YellowCard | E121562-100737020 | | |
| Features | Biocompatible<br>Ductile<br>Ethylene Oxide Sterilizable<br>Food Contact Acceptable<br>High Heat Resistance<br>Hydrolytically Stable<br>Steam Sterilizable | | |
| Uses | Medical/Healthcare Applications<br>Pharmaceuticals | | |
| Agency Ratings | ISO 10993<br>USP Class VI | | |
| Appearance | Clear/Transparent | | |
| Processing Method | Injection Molding | | |
| **Physical** | **Nominal Value** | **Unit** | **Test Method** |
| Specific Gravity | 1.28 | g/cm³ | ASTM D792, ISO 1183 |
| Melt Mass-Flow Rate (MFR) (337°C/6.6 kg) | 10 | g/10 min | ASTM D1238 |
| Melt Volume-Flow Rate (MVR) (360°C/5.0 kg) | 14.0 | cm³/10min | ISO 1133 |
| Molding Shrinkage - Flow (3.20 mm) | 0.50 to 0.70 | % | Internal Method |
| **Mechanical** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Modulus [1] | 2900 | MPa | ASTM D638 |
| Tensile Strength | | | |
| Yield [2] | 95.0 | MPa | ASTM D638 |
| Yield | 97.0 | MPa | ISO 527-2/50 |
| Break [3] | 90.0 | MPa | ASTM D638 |
| Break | 80.0 | MPa | ISO 527-2/50 |
| Tensile Elongation | | | |
| Yield [4] | 7.0 | % | ASTM D638 |
| Yield | 7.0 | % | ISO 527-2/50 |

| | | | |
|---|---|---|---|
| Break [5] | 85 | % | ASTM D638 |
| Break | 80 | % | ISO 527-2/50 |
| Flexural Modulus | | | |
| 50.0 mm Span [6] | 3000 | MPa | ASTM D790 |
| -- [7] | 2800 | MPa | ISO 178 |
| Flexural Stress | | | |
| -- | 136 | MPa | ISO 178 |
| Yield, 50.0 mm Span [8] | 140 | MPa | ASTM D790 |
| **Impact** | **Nominal Value** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength (23°C) | 11 | $kJ/m^2$ | ISO 179/2C |
| Notched Izod Impact | | | |
| 23°C | 70 | J/m | ASTM D256 |
| -30°C [9] | 6.0 | $kJ/m^2$ | ISO 180/1A |
| 23°C [10] | 6.0 | $kJ/m^2$ | ISO 180/1A |
| Unnotched Izod Impact Strength [11] | | | ISO 180/1U |
| -30°C | No Break | | |
| 23°C | No Break | | |
| Reverse Notch Izod Impact (3.20 mm) | 3300 | J/m | ASTM D256 |
| Instrumented Dart Impact | | | ASTM D3763 |
| -20°C, Total Energy | 93.0 | J | |
| 0°C, Total Energy | 99.0 | J | |
| 23°C, Total Energy | 93.0 | J | |
| Instrumented Impact, Ductility | | | ASTM D3763 |
| -20°C | 90 | % | |
| 0°C | 100 | % | |
| 23°C | 100 | % | |
| NBS Smoke Density - Flaming, Ds, 4 min | 0.700 | | ASTM E662 |
| **Thermal** | **Nominal Value** | **Unit** | **Test Method** |
| Deflection Temperature Under Load | | | |
| 0.45 MPa, Unannealed, 6.40 mm | 214 | °C | ASTM D648 |
| 0.45 MPa, Unannealed, 100 mm Span [12] | 205 | °C | ISO 75-2/Be |
| 1.8 MPa, Unannealed, 6.40 mm | 204 | °C | ASTM D648 |
| 1.8 MPa, Unannealed, 100 mm Span [13] | 190 | °C | ISO 75-2/Ae |
| Vicat Softening Temperature | | | |
| -- | 219 | °C | ISO 306/A50 |
| -- | 212 | °C | ISO 306/B50, ISO 306/B120 |
| CLTE | | | |
| Flow : -20 to 150°C | 5.6E-5 | cm/cm/°C | ASTM E831 |
| Flow : 23 to 150°C | 5.0E-5 | cm/cm/°C | ISO 11359-2 |
| Transverse : -20 to 150°C | 5.5E-5 | cm/cm/°C | ASTM E831 |
| Transverse : 23 to 150°C | 5.0E-5 | cm/cm/°C | ISO 11359-2 |
| Thermal Conductivity | 0.19 | W/m/K | ASTM C177 |

| Flammability | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Flame Rating (0.750 mm) | V-0 | | UL 94 |
| Oxygen Index | 46 | % | ASTM D2863 |

| Injection | Nominal Value | Unit |
|---|---|---|
| Drying Temperature | 150 | °C |
| Drying Time | 6.0 to 8.0 | hr |
| Drying Time, Maximum | 24 | hr |
| Suggested Max Moisture | 0.020 | % |
| Suggested Shot Size | 40 to 60 | % |
| Rear Temperature | 330 to 390 | °C |
| Middle Temperature | 335 to 390 | °C |
| Front Temperature | 345 to 390 | °C |
| Nozzle Temperature | 345 to 390 | °C |
| Processing (Melt) Temp | 355 to 390 | °C |
| Mold Temperature | 130 to 160 | °C |
| Back Pressure | 0.300 to 0.700 | MPa |
| Screw Speed | 40 to 70 | rpm |
| Vent Depth | 0.025 to 0.076 | mm |

| NOTE | |
|---|---|
| 1. | 5.0 mm/min |
| 2. | Type I, 5.0 mm/min |
| 3. | Type I, 5.0 mm/min |
| 4. | Type I, 5.0 mm/min |
| 5. | Type I, 5.0 mm/min |
| 6. | 1.3 mm/min |
| 7. | 2.0 mm/min |
| 8. | 1.3 mm/min |
| 9. | 80*10*4 |
| 10. | 80*10*4 |
| 11. | 80*10*4 |
| 12. | 120*10*4 mm |
| 13. | 120*10*4 mm |



Recommended distributors for this material

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