

Ultem* Resin 1010K

Americas: COMMERCIAL

Transparent, high flow Polyetherimide (Tg 217C). ECO Conforming.

Property

| TYPICAL PROPERTIES ⁽¹⁾ | | | |
|--|---------|-------------------|----------------|
| MECHANICAL | Value | Unit | Standard |
| Tensile Stress, yld, Type I, 5 mm/min | 110 | MPa | ASTM D 638 |
| Tensile Stress, brk, Type I, 5 mm/min | 105 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 5 mm/min | 7 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 5 mm/min | 60 | % | ASTM D 638 |
| Tensile Modulus, 5 mm/min | 3590 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 165 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 3520 | MPa | ASTM D 790 |
| Tensile Stress, yield, 5 mm/min | 105 | MPa | ISO 527 |
| Tensile Stress, break, 5 mm/min | 85 | MPa | ISO 527 |
| Tensile Strain, yield, 5 mm/min | 6 | % | ISO 527 |
| Tensile Strain, break, 5 mm/min | 60 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 3200 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 160 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 3300 | MPa | ISO 178 |
| IMPACT | Value | Unit | Standard |
| Izod Impact, unnotched, 23°C | 1335 | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 32 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 35 | J/m | ASTM D 256 |
| Izod Impact, Reverse Notched, 3.2 mm | 1175 | J/m | ASTM D 256 |
| Instrumented Impact Total Energy, 23°C | 33 | J | ASTM D 3763 |
| Izod Impact, unnotched 80*10*4 +23°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80*10*4 -30°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80*10*4 +23°C | 5 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 5 | kJ/m ² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 3 | kJ/m ² | ISO 179/1eA |
| THERMAL | Value | Unit | Standard |
| Vicat Softening Temp, Rate B/50 | 219 | °C | ASTM D 1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 205 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 197 | °C | ASTM D 648 |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 207 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 199 | °C | ASTM D 648 |
| CTE, -40°C to 150°C, flow | 5.5E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 150°C, xflow | 5.5E-05 | 1/°C | ASTM E 831 |
| CTE, 23°C to 150°C, flow | 5.E-05 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 150°C, xflow | 5.E-05 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 125°C +/- 2°C | Passes | - | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50 | 215 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/50 | 211 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 212 | °C | ISO 306 |

| | | | |
|---|--------------|-------------------------|-----------------|
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 200 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 190 | °C | ISO 75/Ae |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 193 | °C | ISO 75/Af |
| PHYSICAL | Value | Unit | Standard |
| Specific Gravity | 1.27 | - | ASTM D 792 |
| Mold Shrinkage on Tensile Bar, flow (2) | 0.5 - 0.7 | % | SABIC Method |
| Mold Shrinkage, flow, 3.2 mm | 0.5 - 0.7 | % | SABIC Method |
| Mold Shrinkage, xflow, 3.2 mm | 0.5 - 0.7 | % | SABIC Method |
| Melt Flow Rate, 337°C/6.6 kgf | 17.8 | g/10 min | ASTM D 1238 |
| Density | 1.27 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 1.25 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) | 0.7 | % | ISO 62 |
| Melt Volume Rate, MVR at 360°C/5.0 kg | 25 | cm ³ /10 min | ISO 1133 |

Source GMD, last updated:01/11/2005

Processing

| Parameter | Value | Unit |
|-----------------------------|---------------|------|
| Injection Molding | | |
| Drying Temperature | 150 | °C |
| Drying Time | 4 - 6 | hrs |
| Drying Time (Cumulative) | 24 | hrs |
| Maximum Moisture Content | 0.02 | % |
| Melt Temperature | 350 - 400 | °C |
| Nozzle Temperature | 345 - 400 | °C |
| Front - Zone 3 Temperature | 345 - 400 | °C |
| Middle - Zone 2 Temperature | 340 - 400 | °C |
| Rear - Zone 1 Temperature | 330 - 400 | °C |
| Mold Temperature | 135 - 165 | °C |
| Back Pressure | 0.3 - 0.7 | MPa |
| Screw Speed | 40 - 70 | rpm |
| Shot to Cylinder Size | 40 - 60 | % |
| Vent Depth | 0.025 - 0.076 | mm |

Source GMD, last updated:01/11/2005

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

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