

Ultem* Resin XH6050

Americas: COMMERCIAL

Transparent, enhanced flow Polyetherimidesulfone copolymer (Tg 247C). ECO Conforming, UL94 V0 listing. Resin is subject to U.S. Commerce Control Laws (15CFR Chapter VII, Part 774).

Property

| TYPICAL PROPERTIES ⁽¹⁾ | | | |
|---|--------|-------------------|----------------|
| MECHANICAL | Value | Unit | Standard |
| Tensile Stress, yld, Type I, 5 mm/min | 96 | MPa | ASTM D 638 |
| Tensile Stress, brk, Type I, 5 mm/min | 96 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 5 mm/min | 6 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 5 mm/min | 25 | % | ASTM D 638 |
| Tensile Modulus, 5 mm/min | 3510 | MPa | ASTM D 638 |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 159 | MPa | ASTM D 790 |
| Flexural Stress, yld, 2.6 mm/min, 100 mm span | 155 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 3170 | MPa | ASTM D 790 |
| Tensile Stress, yield, 5 mm/min | 95 | MPa | ISO 527 |
| Tensile Stress, break, 5 mm/min | 78 | MPa | ISO 527 |
| Tensile Strain, yield, 5 mm/min | 8.5 | % | ISO 527 |
| Tensile Strain, break, 5 mm/min | 16.8 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 3110 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 123 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 3080 | MPa | ISO 178 |
| Hardness, H358/30 | 140 | MPa | ISO 2039-1 |
| IMPACT | Value | Unit | Standard |
| Izod Impact, unnotched, 23°C | NB | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 69 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 74 | 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 | 4 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 5 | kJ/m ² | ISO 180/1A |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm | NB | kJ/m ² | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm | NB | kJ/m ² | ISO 179/1eU |
| THERMAL | Value | Unit | Standard |
| Vicat Softening Temp, Rate B/50 | 242 | °C | ASTM D 1525 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 217 | °C | ASTM D 648 |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 237 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 230 | °C | ASTM D 648 |
| CTE, -40°C to 150°C, flow | 5.E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 150°C, xflow | 5.E-05 | 1/°C | ASTM E 831 |
| Thermal Conductivity | 0.22 | W/m-°C | ASTM E 1530 |
| 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 B/50 | 242 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 238 | °C | ISO 306 |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 228 | °C | ISO 75/Af |
| PHYSICAL | Value | Unit | Standard |
| Specific Gravity | 1.3 | - | 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, 367°C/6.6 kgf | 12.5 | g/10 min | ASTM D 1238 |
| Density | 1.3 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 1.75 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) | 0.6 | % | ISO 62 |
| Melt Volume Rate, MVR at 360°C/5.0 kg | 8 | cm ³ /10 min | ISO 1133 |
| OPTICAL | Value | Unit | Standard |
| Light Transmission | 58 | % | ASTM D 1003 |
| Haze | 2 | % | ASTM D 1003 |
| ELECTRICAL | Value | Unit | Standard |
| Dielectric Strength, in oil, 3.2 mm | 17 | kV/mm | ASTM D 149 |
| Dissipation Factor, 50/60 Hz | 0.025 | - | IEC 60250 |
| Dissipation Factor, 100 Hz | 0.008 | - | IEC 60250 |
| Dissipation Factor, 1 kHz | 0.001 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.007 | - | IEC 60250 |
| Comparative Tracking Index | 175 | V | IEC 60112 |
| FLAME CHARACTERISTICS | Value | Unit | Standard |
| Glow Wire Flammability Index 960°C, passes at | 3.2 | mm | IEC 60695-2-12 |
| Glow Wire Ignitability Temperature, 3.0 mm | 850 | °C | IEC 60695-2-13 |
| Oxygen Index (LOI) | 45 | % | ISO 4589 |

Source GMD, last updated:03/24/2004

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 | 380 - 405 | °C |
| Nozzle Temperature | 375 - 400 | °C |
| Front - Zone 3 Temperature | 380 - 405 | °C |
| Middle - Zone 2 Temperature | 370 - 395 | °C |
| Rear - Zone 1 Temperature | 360 - 380 | °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:03/24/2004

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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