# ULTEM™ Resin DT1820EVGCR3

## DESCRIPTION

DT1820EVGCR3 resin grade is 30% PCR (Post Consumer Recycle) combined with bio-based polyetherimide solutions. High flow high gloss polyetherimide (PEI) blend with internal mold release and enhanced ductility. ISCC+ certified renewable bio-based solutions are available for this grade.

| GENERAL INFORMATION | |
|---|---|
| Features | High Flow, Mechanical Recycling, Bio-Renewable, Enhanced mold release, No PFAS intentionally added (PCR contains <50ppm total organic fluorine content) |
| Fillers | Unreinforced |
| Polymer Types | Polyetherimide (PEI) |
| Processing Techniques | Injection Molding |

| INDUSTRY | SUB INDUSTRY |
|---|---|
| Electrical and Electronics | Electronic Components, Mobile Phone - Computer - Tablets |

## TYPICAL PROPERTY VALUES

Revision 20250819

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL [1] | | | |
| Tensile Stress, yld, Type I, 50 mm/min | 105 | MPa | ASTM D638 |
| Tensile Stress, brk, Type I, 50 mm/min | 76 | MPa | ASTM D638 |
| Tensile Strain, yld, Type I, 50 mm/min | 6.3 | % | ASTM D638 |
| Tensile Strain, brk, Type I, 50 mm/min | 18 | % | ASTM D638 |
| Tensile Modulus, 5 mm/min | 3055 | MPa | ASTM D638 |
| Flexural Strength, 1.3 mm/min, 50 mm span | 160 | MPa | ASTM D790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 3140 | MPa | ASTM D790 |
| Tensile Stress, yield, 50 mm/min | 104 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 76 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 6.4 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 18 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 3071 | MPa | ISO 527 |
| Flexural Strength, 2 mm/min | 154 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 3028 | MPa | ISO 178 |
| IMPACT [1] | | | |
| Izod Impact, notched, 23°C | 37 | J/m | ASTM D256 |
| Izod Impact, unnotched, 23°C | 1759 | J/m | ASTM D4812 |
| Izod Impact, notched 80*10*4 +23°C | 5 | kJ/m² | ISO 180/1A |
| Izod Impact, unnotched 80*10*4 +23°C | 105 | kJ/m² | ISO 180/1U |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 3.3 | kJ/m² | ISO 179/1eA |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm | 84 | kJ/m² | ISO 179/1eU |
| THERMAL [1] | | | |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 182 | °C | ASTM D648 |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| HDT, 1.82 MPa, 3.2mm, unannealed | 168 | °C | ASTM D648 |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm | 185 | °C | ISO 75/Bf |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 170 | °C | ISO 75/Af |
| CTE, -40°C to 150°C, flow | 5.6E-05 | 1/°C | ASTM E831 |
| CTE, -40°C to 150°C, xflow | 5.8E-05 | 1/°C | ASTM E831 |
| CTE, -40°C to 150°C, flow | 5.5E-05 | 1/°C | ISO 11359-2 |
| CTE, -40°C to 150°C, xflow | 5.6E-05 | 1/°C | ISO 11359-2 |
| Vicat Softening Temp, Rate B/50 | 188 | °C | ASTM D1525 |
| Vicat Softening Temp, Rate B/120 | 189 | °C | ASTM D1525 |
| Vicat Softening Temp, Rate B/50 | 189 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 191 | °C | ISO 306 |
| PHYSICAL (1) | | | |
| Specific Gravity | 1.28 | - | ASTM D792 |
| Density | 1.28 | g/cm³ | ISO 1183 |
| Melt Flow Rate | | | |
| 337°C/6.7 kgf | 56 | g/10 min | ASTM D1238 |
| Water Absorption, (23°C/24hrs) | 0.18 | % | ASTM D570 |
| Moisture Absorption, (23°C/50% RH/24hrs) | 0.07 | % | ISO 62-4 |
| Mold Shrinkage, flow (2) | 0.58 | % | SABIC method |
| Mold Shrinkage, xflow (2) | 0.62 | % | SABIC method |
| INJECTION MOLDING (3) | | | |
| Drying Temperature | 135 – 150 | °C | |
| Drying Time | 4 – 6 | Hrs | |
| Drying Time (Cumulative) | 24 | Hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 320 – 355 | °C | |
| Nozzle Temperature | 325 – 350 | °C | |
| Front - Zone 3 Temperature | 330 – 355 | °C | |
| Middle - Zone 2 Temperature | 320 – 345 | °C | |
| Rear - Zone 1 Temperature | 310 – 330 | °C | |
| Mold Temperature | 110 – 165 | °C | |
| Back Pressure | 0.3 – 0.7 | MPa | |
| Screw Speed | 40 – 70 | rpm | |

(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) 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.

(3) 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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