



**ULTEM™ Resin 2100R**  
**Americas: COMMERCIAL**

10% Glass fiber filled, standard flow Polyetherimide (Tg 217C) with internal mold release. ECO Conforming, UL94 V0 and 5VA listing.

| TYPICAL PROPERTIES <sup>1</sup>               | TYPICAL VALUE | Unit                | Standard     |
|-----------------------------------------------|---------------|---------------------|--------------|
| <b>MECHANICAL</b>                             |               |                     |              |
| Tensile Stress, yld, Type I, 5 mm/min         | 1160          | kgf/cm <sup>2</sup> | ASTM D 638   |
| Tensile Stress, brk, Type I, 5 mm/min         | 1180          | kgf/cm <sup>2</sup> | ASTM D 638   |
| Tensile Strain, brk, Type I, 5 mm/min         | 6             | %                   | ASTM D 638   |
| Tensile Modulus, 5 mm/min                     | 47800         | kgf/cm <sup>2</sup> | ASTM D 638   |
| Flexural Stress, brk, 2.6 mm/min, 100 mm span | 2030          | kgf/cm <sup>2</sup> | ASTM D 790   |
| Flexural Modulus, 2.6 mm/min, 100 mm span     | 52700         | kgf/cm <sup>2</sup> | ASTM D 790   |
| Hardness, Rockwell M                          | 114           | -                   | ASTM D 785   |
| <b>IMPACT</b>                                 |               |                     |              |
| Izod Impact, unnotched, 23°C                  | 49            | cm-kgf/cm           | ASTM D 4812  |
| Izod Impact, notched, 23°C                    | 8             | cm-kgf/cm           | ASTM D 256   |
| Izod Impact, Reverse Notched, 3.2 mm          | 51            | cm-kgf/cm           | ASTM D 256   |
| <b>THERMAL</b>                                |               |                     |              |
| Vicat Softening Temp, Rate B/50               | 223           | °C                  | ASTM D 1525  |
| HDT, 0.45 MPa, 6.4 mm, unannealed             | 210           | °C                  | ASTM D 648   |
| HDT, 1.82 MPa, 6.4 mm, unannealed             | 208           | °C                  | ASTM D 648   |
| CTE, -20°C to 150°C, flow                     | 3.24E-05      | 1/°C                | ASTM E 831   |
| Relative Temp Index, Elec                     | 170           | °C                  | UL 746B      |
| Relative Temp Index, Mech w/impact            | 170           | °C                  | UL 746B      |
| Relative Temp Index, Mech w/o impact          | 170           | °C                  | UL 746B      |
| <b>PHYSICAL</b>                               |               |                     |              |
| Specific Gravity                              | 1.34          | -                   | ASTM D 792   |
| Water Absorption, 24 hours                    | 0.21          | %                   | ASTM D 570   |
| Water Absorption, equilibrium, 23C            | 1.2           | %                   | ASTM D 570   |
| Mold Shrinkage, flow, 3.2 mm (5)              | 0.5 - 0.6     | %                   | SABIC Method |

(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.  
(5) 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.  
(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

Source GMD, last updated:  
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|---------------------------------------------|---------------|----------|-------------|
| <b>PHYSICAL</b>                             |               |          |             |
| Melt Flow Rate, 337°C/6.6 kgf               | 7.8           | g/10 min | ASTM D 1238 |
| <b>ELECTRICAL</b>                           |               |          |             |
| Volume Resistivity                          | 1.E+17        | Ohm-cm   | ASTM D 257  |
| Dielectric Strength, in oil, 1.6 mm         | 27.5          | kV/mm    | ASTM D 149  |
| Relative Permittivity, 1 kHz                | 3.5           | -        | ASTM D 150  |
| Dissipation Factor, 1 kHz                   | 0.0014        | -        | ASTM D 150  |
| Dissipation Factor, 2450 MHz                | 0.0046        | -        | ASTM D 150  |
| Arc Resistance, Tungsten {PLC}              | 6             | PLC Code | ASTM D 495  |
| Hot Wire Ignition {PLC}                     | 1             | PLC Code | UL 746A     |
| High Voltage Arc Track Rate {PLC}           | 2             | PLC Code | UL 746A     |
| High Ampere Arc Ign, surface {PLC}          | 4             | PLC Code | UL 746A     |
| Comparative Tracking Index (UL) {PLC}       | 4             | PLC Code | UL 746A     |
| <b>FLAME CHARACTERISTICS</b>                |               |          |             |
| UL Recognized, 94V-0 Flame Class Rating (3) | 0.4           | mm       | UL 94       |
| UL Recognized, 94-5VA Rating (3)            | 1.9           | mm       | UL 94       |
| Oxygen Index (LOI)                          | 47            | %        | ASTM D 2863 |
| NBS Smoke Density, Flaming, Ds 4 min        | 1.8           | -        | ASTM E 662  |

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| PROCESSING PARAMETERS       | TYPICAL VALUE | Unit |
|-----------------------------|---------------|------|
| <b>Injection Molding</b>    |               |      |
| 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   |

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