



**ULTEM™ Resin 4001**  
**Americas: COMMERCIAL**

PTFE filled, standard flow Polyetherimide (Tg 217C). 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         | 1050          | kgf/cm <sup>2</sup> | ASTM D 638   |
| Tensile Strain, brk, Type I, 5 mm/min         | 40            | %                   | ASTM D 638   |
| Tensile Modulus, 5 mm/min                     | 34200         | kgf/cm <sup>2</sup> | ASTM D 638   |
| Flexural Stress, yld, 2.6 mm/min, 100 mm span | 1540          | kgf/cm <sup>2</sup> | ASTM D 790   |
| Flexural Modulus, 2.6 mm/min, 100 mm span     | 34700         | kgf/cm <sup>2</sup> | ASTM D 790   |
| Hardness, Rockwell M                          | 110           | -                   | ASTM D 785   |
| Taber Abrasion, CS-17, 1 kg                   | 2             | mg/1000cy           | ASTM D 1044  |
| PV Limit, 0.51 m/s                            | 1.9           | MPa-m/s             | SABIC Method |
| K-factor xE-10, PV=2000 psi-fpm vs Steel      | 72            | -                   | SABIC Method |
| K-factor xE-10, PV=2000 psi-fpm vs Self       | 27            | -                   | SABIC Method |
| Coefficient of Friction on steel,Kinetic      | 0.25          | -                   | ASTM D 1894  |
| <b>IMPACT</b>                                 |               |                     |              |
| Izod Impact, unnotched, 23°C                  | 54            | cm-kgf/cm           | ASTM D 4812  |
| Izod Impact, notched, 23°C                    | 11            | cm-kgf/cm           | ASTM D 256   |
| Izod Impact, Reverse Notched, 3.2 mm          | 130           | cm-kgf/cm           | ASTM D 256   |
| <b>THERMAL</b>                                |               |                     |              |
| HDT, 1.82 MPa, 6.4 mm, unannealed             | 200           | °C                  | ASTM D 648   |
| 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                              | 1.33          | -                   | ASTM D 792   |
| Mold Shrinkage, flow, 3.2 mm (5)              | 0.5 - 0.7     | %                   | SABIC Method |
| Melt Flow Rate, 337°C/6.6 kgf                 | 9.5           | g/10 min            | ASTM D 1238  |



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|---------------------------------------------|---------------|----------|------------|
| <b>ELECTRICAL</b>                           |               |          |            |
| 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}          | 0             | 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) | 0.38          | mm       | UL 94      |
| UL Recognized, 94-5VA Rating (3)            | 1.49          | mm       | UL 94      |



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| PROCESSING PARAMETERS       | TYPICAL VALUE | Unit |
|-----------------------------|---------------|------|
| <b>Injection Molding</b>    |               |      |
| Drying Temperature          | 135           | °C   |
| Drying Time                 | 4 - 6         | hrs  |
| Drying Time (Cumulative)    | 10            | hrs  |
| Maximum Moisture Content    | 0.02          | %    |
| Melt Temperature            | 350 - 370     | °C   |
| Nozzle Temperature          | 350 - 370     | °C   |
| Front - Zone 3 Temperature  | 350 - 370     | °C   |
| Middle - Zone 2 Temperature | 345 - 365     | °C   |
| Rear - Zone 1 Temperature   | 340 - 360     | °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   |