

## SABIC Innovative Plastics ULTEM 4002 PEI

Category : Polymer , Thermoplastic , Polyetherimide (PEI)

### Material Notes:

PTFE filled, standard flow Polyetherimide (Tg 217C). ECO Conforming, UL 94 V0 and 5VA listing in recognized colors.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_SABIC-Innovative-Plastics-ULTEM-4002-PEI.php](http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-ULTEM-4002-PEI.php)

| Physical Properties               | Metric                                      | English                                      | Comments                                |
|-----------------------------------|---------------------------------------------|----------------------------------------------|-----------------------------------------|
| Specific Gravity                  | 1.33 g/cc                                   | 1.33 g/cc                                    | ASTM D792                               |
| Density                           | 1.33 g/cc                                   | 0.0480 lb/in <sup>3</sup>                    | ISO 1183                                |
| Moisture Absorption               | 0.600 %                                     | 0.600 %                                      | 23Â°C / 50% RH; ISO 62                  |
| Water Absorption at Saturation    | 1.1 %                                       | 1.1 %                                        | ISO 62                                  |
| Linear Mold Shrinkage, Flow       | 0.0060 - 0.0080 cm/cm                       | 0.0060 - 0.0080 in/in                        | on Tensile Bar; SABIC Method            |
|                                   | 0.0050 - 0.0070 cm/cm<br>@Thickness 3.20 mm | 0.0050 - 0.0070 in/in<br>@Thickness 0.126 in | SABIC Method                            |
| Linear Mold Shrinkage, Transverse | 0.0050 - 0.0070 cm/cm                       | 0.0050 - 0.0070 in/in                        | SABIC Method                            |
|                                   | @Thickness 3.20 mm                          | @Thickness 0.126 in                          |                                         |
| Melt Flow                         | 9.5 g/10 min                                | 9.5 g/10 min                                 | ASTM D1238                              |
|                                   | @Load 6.60 kg,<br>Temperature 337 Â°C       | @Load 14.6 lb,<br>Temperature 639 Â°F        |                                         |
| Melt Index of Compound            | 13 g/10 min                                 | 13 g/10 min                                  | MVR [cm <sup>3</sup> /10 min]; ISO 1133 |
|                                   | @Load 5.00 kg,<br>Temperature 360 Â°C       | @Load 11.0 lb,<br>Temperature 680 Â°F        |                                         |

| Mechanical Properties     | Metric   | English   | Comments                    |
|---------------------------|----------|-----------|-----------------------------|
| Tensile Strength at Break | 80.0 MPa | 11600 psi | 50 mm/min; ISO 527          |
|                           | 85.0 MPa | 12300 psi | Type I, 5 mm/min; ASTM D638 |
| Tensile Strength, Yield   | 100 MPa  | 14500 psi | 50 mm/min; ISO 527          |
|                           | 105 MPa  | 15200 psi | Type I, 5 mm/min; ASTM D638 |
| Elongation at Break       | 25 %     | 25 %      | 50 mm/min; ISO 527          |
|                           | 40 %     | 40 %      | Type I, 5 mm/min; ASTM D638 |
| Elongation at Yield       | 5.0 %    | 5.0 %     | Type I, 5 mm/min; ASTM D638 |

| Mechanical Properties      | 6.0%<br>Metric            | 6.0%<br>English           | 50 mm/min; ISO 527<br>Comments     |
|----------------------------|---------------------------|---------------------------|------------------------------------|
| Tensile Modulus            | 3.30 GPa                  | 479 ksi                   | 1 mm/min; ISO 527                  |
|                            | 3.46 GPa                  | 502 ksi                   | 5 mm/min; ASTM D638                |
| Flexural Yield Strength    | 130 MPa                   | 18900 psi                 | 2 mm/min; ISO 178                  |
|                            | 155 MPa                   | 22500 psi                 | 1.3 mm/min, 50 mm span; ASTM D790  |
| Flexural Modulus           | 3.10 GPa                  | 450 ksi                   | 2 mm/min; ISO 178                  |
|                            | 3.55 GPa                  | 515 ksi                   | 1.3 mm/min, 50 mm span; ASTM D790  |
| Izod Impact, Notched       | 1.17 J/cm                 | 2.19 ft-lb/in             | ASTM D256                          |
|                            | 1.20 J/cm                 | 2.25 ft-lb/in             |                                    |
|                            | @Temperature -30.0<br>Â°C | @Temperature -22.0<br>Â°F | ASTM D256                          |
| Izod Impact, Notched (ISO) | 10.0 kJ/mÂ²               | 4.76 ft-lb/inÂ²           | 80*10*4; ISO 180/1A                |
|                            | 8.00 kJ/mÂ²               | 3.81 ft-lb/inÂ²           |                                    |
|                            | @Temperature -30.0<br>Â°C | @Temperature -22.0<br>Â°F | 80*10*4; ISO 180/1A                |
| Charpy Impact, Notched     | 1.10 J/cmÂ²               | 5.23 ft-lb/inÂ²           | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
| Dart Drop, Total Energy    | 380 J                     | 280 ft-lb                 |                                    |
|                            | @Temperature 23.0<br>Â°C  | @Temperature 73.4 Â°F     | ASTM D3763                         |

| Thermal Properties              | Metric                          | English                         | Comments    |
|---------------------------------|---------------------------------|---------------------------------|-------------|
| CTE, linear, Parallel to Flow   | 39.0 Âµm/m-Â°C                  | 21.7 Âµin/in-Â°F                |             |
|                                 | @Temperature -40.0 -<br>150 Â°C | @Temperature -40.0 -<br>302 Â°F | ASTM E 831  |
|                                 | 39.0 Âµm/m-Â°C                  | 21.7 Âµin/in-Â°F                |             |
|                                 | @Temperature 23.0 -<br>150 Â°C  | @Temperature 73.4 -<br>302 Â°F  | ISO 11359-2 |
| CTE, linear, Transverse to Flow | 40.0 Âµm/m-Â°C                  | 22.2 Âµin/in-Â°F                |             |
|                                 | @Temperature -40.0 -<br>150 Â°C | @Temperature -40.0 -<br>302 Â°F | ASTM E 831  |
|                                 | 40.0 Âµm/m-Â°C                  | 22.2 Âµin/in-Â°F                |             |
|                                 | @Temperature 23.0 -<br>150 Â°C  | @Temperature 73.4 -<br>302 Â°F  | ISO 11359-2 |

| Deflection Temperature at 1.8 MPa<br>(150 psi)<br>Thermal Properties | 190 Â°C<br>Metric             | 374 Â°F<br>English             | Edgew 120*10*4 sp=100mm; ISO<br>150/100<br>Comments |
|----------------------------------------------------------------------|-------------------------------|--------------------------------|-----------------------------------------------------|
|                                                                      | 197 Â°C<br>@Thickness 3.20 mm | 387 Â°F<br>@Thickness 0.126 in | unannealed; ASTM D648                               |
|                                                                      | 200 Â°C<br>@Thickness 6.40 mm | 392 Â°F<br>@Thickness 0.252 in | unannealed; ASTM D648                               |
| Vicat Softening Point                                                | 210 Â°C                       | 410 Â°F                        | Rate B/120; ISO 306                                 |
|                                                                      | 215 Â°C                       | 419 Â°F                        | Rate B/50; ISO 306                                  |
|                                                                      | 219 Â°C                       | 426 Â°F                        | Rate B/50; ASTM D1525                               |
| Glass Transition Temp, Tg                                            | 217 Â°C                       | 423 Â°F                        |                                                     |
| Flammability, UL94                                                   | V-0<br>@Thickness 0.400 mm    | V-0<br>@Thickness 0.0157 in    | UL 94                                               |

| Descriptive Properties              | Value  | Comments       |
|-------------------------------------|--------|----------------|
| Ball Pressure Test, 125Â°C +/- 2Â°C | Passes | IEC 60695-10-2 |

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