

# ULTEM™ Resin 1030

REGION ASIA

## DESCRIPTION

ULTEM 1030 resin is an unreinforced amorphous polyetherimide (PEI) resin that may offer a high glass transition temperature (Tg) of 210°C and improved flow. Features are excellent mechanical, electrical and dimensional properties up to high temperatures. The material may offer very good chemical resistance for an amorphous material. The material is RoHS compliant and the natural, uncolored, material is halogen free according to standards IEC 61249-2-21, IPC 4101E and JEDEC JS709B. For colored variants compliance needs to be checked case by case. The base material is transparent amber colored but is also available in custom colors transparent and opaque. ISCC+ certified renewable bio-based solutions are available for this grade via differentiated color nomenclature.

| GENERAL INFORMATION   |                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------|
| Features              | High Flow, Amorphous, IR Transparent, Dimensional stability, High stiffness/Strength |
| Fillers               | Unreinforced                                                                         |
| Polymer Types         | Polyetherimide (PEI)                                                                 |
| Processing Techniques | Injection Molding                                                                    |

| INDUSTRY                   | SUB INDUSTRY           |
|----------------------------|------------------------|
| Electrical and Electronics | Wireless Communication |

## TYPICAL PROPERTY VALUES

Revision 20260911

| PROPERTIES                                     | TYPICAL VALUES | UNITS             | TEST METHODS |
|------------------------------------------------|----------------|-------------------|--------------|
| <b>MECHANICAL <sup>(1)</sup></b>               |                |                   |              |
| Tensile Stress, yld, Type I, 50 mm/min         | 115            | MPa               | ASTM D638    |
| Tensile Stress, brk, Type I, 50 mm/min         | 84             | MPa               | ASTM D638    |
| Tensile Strain, yld, Type I, 50 mm/min         | 7              | %                 | ASTM D638    |
| Tensile Strain, brk, Type I, 50 mm/min         | 50             | %                 | ASTM D638    |
| Tensile Nominal Strain, brk, Type I, 50 mm/min | 50             | %                 | ASTM D638    |
| Tensile Modulus, 50 mm/min                     | 3490           | MPa               | ASTM D638    |
| Flexural Strength, 1.3 mm/min, 50 mm span      | 161            | MPa               | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span       | 3305           | MPa               | ASTM D790    |
| Tensile Stress, yield, 50 mm/min               | 113            | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min               | 86             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min               | 7              | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min               | 50             | %                 | ISO 527      |
| Tensile Nominal Strain, break, 50 mm/min       | 50             | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                      | 3222           | MPa               | ISO 527      |
| Flexural Strength, 2 mm/min                    | 150            | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                     | 3228           | MPa               | ISO 178      |
| <b>IMPACT <sup>(1)</sup></b>                   |                |                   |              |
| Izod Impact, notched, 23°C                     | 30             | J/m               | ASTM D256    |
| Izod Impact, unnotched, 23°C                   | 1037           | J/m               | ASTM D4812   |
| Izod Impact, unnotched 80*10*4 +23°C           | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |

| PROPERTIES                                     | TYPICAL VALUES | UNITS      | TEST METHODS |
|------------------------------------------------|----------------|------------|--------------|
| Izod Impact, unnotched 80*10*4 -30°C           | NB             | kJ/m²      | ISO 180/1U   |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm     | 3              | kJ/m²      | ISO 179/1eA  |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm     | 115            | kJ/m²      | ISO 179/1eU  |
| THERMAL <sup>(1)</sup>                         |                |            |              |
| HDT, 0.45 MPa, 3.2 mm, unannealed              | 197            | °C         | ASTM D648    |
| HDT, 1.82 MPa, 3.2mm, unannealed               | 182            | °C         | ASTM D648    |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm         | 198            | °C         | ISO 75/Bf    |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm          | 183            | °C         | ISO 75/Af    |
| CTE, -20°C to 150°C, flow                      | 5.20E-05       | 1/°C       | ASTM E831    |
| CTE, -20°C to 150°C, xflow                     | 5.20E-05       | 1/°C       | ASTM E831    |
| CTE, -40°C to 150°C, flow                      | 5.20E-05       | 1/°C       | ISO 11359-2  |
| CTE, -40°C to 150°C, xflow                     | 5.20E-05       | 1/°C       | ISO 11359-2  |
| Vicat Softening Temp, Rate B/50                | 207            | °C         | ASTM D1525   |
| Vicat Softening Temp, Rate B/120               | 207            | °C         | ASTM D1525   |
| Vicat Softening Temp, Rate B/50                | 209            | °C         | ISO 306      |
| Vicat Softening Temp, Rate B/120               | 208            | °C         | ISO 306      |
| PHYSICAL <sup>(1)</sup>                        |                |            |              |
| Specific Gravity                               | 1.28           | -          | ASTM D792    |
| Density                                        | 1.28           | g/cm³      | ISO 1183     |
| Melt Flow Rate                                 |                |            |              |
| 337°C/6.6 kgf                                  | 38             | g/10 min   | ASTM D1238   |
| Melt Volume Rate                               |                |            |              |
| 337°C/6.6 kg                                   | 30             | cm³/10 min | ISO 1133     |
| Water Absorption, (23°C/24hrs)                 | 1.25           | %          | ASTM D570    |
| Water Absorption, (23°C/Saturated)             | 0.25           | %          | ASTM D570    |
| Water Absorption, (23°C/24hrs)                 | 1.25           | %          | ISO 62-1     |
| Water Absorption, (23°C/saturated)             | 0.25           | %          | ISO 62-1     |
| Moisture Absorption, (23°C/50% RH/24hrs)       | 0.2            | %          | ISO 62-4     |
| Moisture Absorption, (23°C/50% RH/Equilibrium) | 0.7            | %          | ISO 62-4     |
| Mold Shrinkage, flow, 24 hrs <sup>(2)</sup>    | 0.5 – 0.7      | %          | ISO 294      |
| Mold Shrinkage, xflow, 24 hrs <sup>(2)</sup>   | 0.5 – 0.7      | %          | ISO 294      |
| Mold Shrinkage, flow, 3.2 mm <sup>(2)</sup>    | 0.5 – 0.7      | %          | SABIC method |
| Mold Shrinkage, xflow, 3.2 mm <sup>(2)</sup>   | 0.5 – 0.7      | %          | SABIC method |
| INJECTION MOLDING <sup>(3)</sup>               |                |            |              |
| Drying Temperature                             | 150            | °C         |              |
| Drying Time                                    | 4 – 6          | Hrs        |              |
| Drying Time (Cumulative)                       | 24             | Hrs        |              |
| Maximum Moisture Content                       | 0.02           | %          |              |
| Melt Temperature                               | 350 – 410      | °C         |              |
| Nozzle Temperature                             | 345 – 405      | °C         |              |
| Front - Zone 3 Temperature                     | 345 – 415      | °C         |              |
| Middle - Zone 2 Temperature                    | 340 – 405      | °C         |              |
| Rear - Zone 1 Temperature                      | 330 – 400      | °C         |              |
| Mold Temperature                               | 135 – 180      | °C         |              |
| Back Pressure                                  | 0.3 – 0.7      | MPa        |              |

| PROPERTIES            | TYPICAL VALUES | UNITS | TEST METHODS |
|-----------------------|----------------|-------|--------------|
| Screw Speed           | 40 – 70        | rpm   |              |
| Shot to Cylinder Size | 40 – 60        | %     |              |
| Vent Depth            | 0.025 – 0.076  | mm    |              |

- (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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