

Ryton® R-4-300BL

polyphenylene sulfide

Ryton® R-4-300BL 40% glass fiber reinforced polyphenylene sulfide compound provides

enhanced mechanical strength after constant or repeated exposure to high temperature water.

General

| | | |
|------------------------|---|------------------------------------|
| Material Status | • Commercial: Active | |
| Availability | • Asia Pacific • Europe | • Latin America • North America |
| Filler / Reinforcement | • Glass Fiber, 40% Filler by Weight | |
| Features | • Chemical Resistant • Good Processability | • High Strength |
| RoHS Compliance | • RoHS Compliant | |
| Appearance | • Black | |
| Forms | • Pellets | |
| Processing Method | • Injection Molding | |

| Physical | Typical Value | Unit | Test method |
|-------------------|---------------|------|-----------------|
| Specific Gravity | 1.68 | | ISO 1183 |
| Molding Shrinkage | | | ISO 294 |
| Flow | 0.20 | % | |
| Across Flow | 0.80 | % | |
| Water Absorption | | | |
| 24 hr, 23°C | 0.020 | % | ASTM D570 |
| 24 hr, 23°C | 0.030 | % | ISO 62 |
| Saturation, 23°C | 0.060 | % | Internal Method |

| Mechanical | Typical Value | Unit | Test method |
|----------------------|---------------|------|-------------|
| Tensile Modulus | | | ISO 527-1 |
| -- | 14900 | MPa | |
| -- ¹ | 15700 | MPa | |
| Tensile Stress | | | ISO 527-2 |
| -- | 190 | MPa | |
| -- ¹ | 188 | MPa | |
| Tensile Elongation | | | ISO 527-2 |
| Break | 1.8 | % | |
| Break ¹ | 2.2 | % | |
| Flexural Modulus | 14000 | MPa | ISO 178 |
| Flexural Stress | 270 | MPa | ISO 178 |
| Compressive Strength | 285 | MPa | ASTM D695 |



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| Impact | Typical Value | Unit | Test method |
|----------------------------------|---------------|-------------------|-------------|
| Charpy Notched Impact Strength | | | ISO 179 |
| -- | 8.3 | kJ/m ² | |
| -- ¹ | 8.4 | kJ/m ² | |
| Charpy Unnotched Impact Strength | | | ISO 179 |
| -- | 44 | kJ/m ² | |
| -- ¹ | 48 | kJ/m ² | |
| Notched Izod Impact Strength | 9.0 | kJ/m ² | ISO 180/A |
| Unnotched Izod Impact Strength | 40 | kJ/m ² | ISO 180 |

| Thermal | Typical Value | Unit | Test method |
|-----------------------------------|---------------|----------|-------------|
| Deflection Temperature Under Load | | | ASTM D648 |
| 1.8 MPa, Unannealed | 265 | °C | |
| CLTE | | | ISO 11359-2 |
| Flow : -50 to 50°C | 1.5E-5 | cm/cm/°C | |
| Flow : 100 to 200°C | 1.0E-5 | cm/cm/°C | |
| Transverse : -50 to 50°C | 4.5E-5 | cm/cm/°C | |
| Transverse : 100 to 200°C | 1.2E-4 | cm/cm/°C | |
| Thermal Conductivity | 0.27 | W/m/K | ASTM E1530 |

| Electrical | Typical Value | Unit | Test method |
|----------------------------------|---------------|---------|-------------|
| Volume Resistivity | 1.0E+16 | ohms-cm | ASTM D257 |
| Dielectric Strength | 20 | kV/mm | ASTM D149 |
| Dielectric Constant | | | ASTM D150 |
| 25°C, 1 kHz | 4.00 | | |
| 25°C, 1 MHz | 4.00 | | |
| Dissipation Factor | | | ASTM D150 |
| 25°C, 1 kHz | 3.0E-3 | | |
| 25°C, 1 MHz | 3.0E-3 | | |
| Arc Resistance | 125 | sec | ASTM D495 |
| Comparative Tracking Index (CTI) | PLC 3 | | UL 746A |
| Comparative Tracking Index | 150 | V | IEC 60112 |

| Flammability | Typical Value | Unit | Test method |
|------------------------|---------------|------|-------------|
| Flame Rating (0.75 mm) | V-0 | | UL 94 |

| Additional Information | Typical Value | Unit |
|-----------------------------------|---------------|------|
| Hydrolytic Stability ² | | |
| Tensile Strength Retained | > 75 | % |
| Weight Gain | < 0.50 | % |



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| Injection | Typical Value | Unit |
|------------------------|---------------|------|
| Drying Temperature | 135 to 150 | °C |
| Drying Time | 2.0 to 4.0 | hr |
| Rear Temperature | 295 to 315 | °C |
| Middle Temperature | 305 to 325 | °C |
| Front Temperature | 315 to 345 | °C |
| Nozzle Temperature | 305 to 325 | °C |
| Processing (Melt) Temp | 320 to 330 | °C |
| Mold Temperature | 135 to 150 | °C |

Notes

Typical properties: these are not to be construed as specifications.

¹ Conditioned data is meant to simulate 23°C 50% RH equilibrium values. Conditioning of specimens was achieved per ISO 1110 by exposing specimens for 11 days, 70°C and 62% RH.

² Test specimens aged 1000 hours in water at 140°C (284°F).

