

For more information and technical assistance contact:

Chevron Phillips Chemical Company LP
P.O. Box 4910
The Woodlands, TX 77387-4910
877.798.6666



Ryton[®] R-4-230 Polyphenylene Sulfide Resins

Ryton[®] R-4-230 PPS is an advanced 40% fiberglass reinforced polyphenylene sulfide compound that provides reduced flash and improved processability compared to other polyphenylene sulfide compounds.

| Nominal Engineering Properties ⁽¹⁾ | R-4-230NA | R-4-230BL | Test Method |
|--|----------------------|----------------------|-------------|
| Tensile Strength, Ksi | 25.0 | 24.0 | ASTM D638 |
| Elongation, % | 1.2 | 1.1 | ASTM D638 |
| Flexural Strength, Ksi | 34.0 | 31.0 | ASTM D790 |
| Flexural Modulus, Msi | 2.1 | 2.1 | ASTM D790 |
| Notched Izod Impact, ft-lb/in, 1/8 in specimen | 1.6 | 1.4 | ASTM D256 |
| Unnotched Izod Impact, ft-lb/in, 1/8 in specimen | 8.5 | 7.5 | ASTM D256 |
| Compressive Strength, Ksi | 39.0 | 39.0 | ASTM D695 |
| Heat Deflection Temperature 264 psi, °F | >500 | >500 | ASTM D648 |
| UL Temperature Index, °C | 200 / 220 | 200 / 220 | UL 746B |
| Coefficient of Linear Thermal Exp., X 10 ⁶ in/in/°C | | | ASTM E831 |
| Axial Direction, -50°C to 50°C | 15 | 15 | |
| Axial Direction, 100°C to 200°C | 15 | 15 | |
| Transverse Direction, -50°C to 50°C | 40 | 40 | |
| Transverse Direction, 100°C to 200°C | 80 | 80 | |
| Flammability Rating | V-0 / 5VA | V-0 / 5 VA | UL 94 |
| Thermal Conductivity, BTU-in/hr-ft ² -°F | 2.1 | 2.1 | |
| Dielectric Strength, V/mil | 500 | 500 | ASTM D149 |
| Dielectric Constant, 78° F | | | ASTM D150 |
| 1kHz | 3.9 | 3.9 | |
| 1MHz | 3.8 | 3.8 | |
| Dissipation Factor, 78°F | | | ASTM D150 |
| 1 kHz | 0.002 | 0.002 | |
| 1 MHz | 0.003 | 0.003 | |
| Volume Resistivity, ohm-cm | 1 x 10 ¹⁶ | 1 x 10 ¹⁶ | ASTM D257 |
| Arc Resistance, sec | 125 | 125 | ASTM D495 |
| Comparative Tracking Index, V | 150 | 150 | UL 746A |
| Insulation Resistance, ohm (90°C, 95% RH, 48 hr) | 1 x 10 ¹² | 1 x 10 ¹² | |
| Mold Shrinkage ⁽²⁾ in/in, Flow/Transverse | 0.003 / 0.005 | 0.003 / 0.005 | |
| Density, g/cc | 1.68 | 1.68 | ASTM D792 |
| Water Absorption, % (23°C, 24 hr) | 0.02 | 0.02 | ASTM D570 |
| Color | Natural | Black | |

(1) Test specimen molding conditions: Stock Temperature, 600-650° F; Mold Temperature, 275° F

(2) Measured on 4 in X 4 in X 1/8 in Plaques, Edge Gated

The nominal properties reported herein are typical of the product but do not reflect normal testing variances and therefore should not be used for specification purposes.

MSDS #298380

Revision Date July, 2009

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Polyphenylene Sulfide Resins

Ryton[®] R-4-230 PPS is an advanced 40% fiberglass reinforced polyphenylene sulfide compound that provides reduced flash and improved processability compared to other polyphenylene sulfide compounds.

| Nominal Engineering Properties ⁽⁵⁾ | R-4-230NA | R-4-230BL | Method |
|--|----------------------|----------------------|-------------|
| Tensile Strength, MPa | 175 | 145 | ISO 527 |
| Elongation, % | 1.3 | 1.0 | ISO 527 |
| Flexural Strength, MPa | 240 | 200 | ISO 178 |
| Flexural Modulus, GPa | 14 | 14 | ISO 178 |
| Notched Izod Impact, kJ/m ² | 9.0 | 8.0 | ISO 180A |
| Unnotched Izod Impact, kJ/m ² | 25 | 20 | ISO 180U |
| Compressive Strength, MPa | 270 | 270 | ISO 604 |
| Heat Deflection Temperature 1.8 MPa, °C | >260 | >260 | ISO 75 |
| UL Temperature Index, °C | 200 / 220 | 200 / 220 | UL 746B |
| Coefficient of Linear Thermal Exp., X 10 ⁶ m/m/°C | | | ISO 11359-2 |
| Axial Direction, -50°C to 50°C | 15 | 15 | |
| Axial Direction, 100°C to 200°C | 15 | 15 | |
| Transverse Direction, -50°C to 50°C | 40 | 40 | |
| Transverse Direction, 100°C to 200°C | 80 | 80 | |
| Flammability Rating | V-0 / 5VA | V-0 / 5VA | UL 94 |
| Thermal Conductivity, W/m·K | 0.31 | 0.31 | |
| Dielectric Strength, kV/mm | 20 | 20 | ASTM D149 |
| Dielectric Constant, 25°C | | | ASTM D150 |
| 1kHz | 3.9 | 3.9 | |
| 1MHz | 3.8 | 3.8 | |
| Dissipation Factor, 25°C | | | ASTM D150 |
| 1 kHz | 0.002 | 0.002 | |
| 1 MHz | 0.003 | 0.003 | |
| Volume Resistivity, ohm-cm | 1 x 10 ¹⁶ | 1 x 10 ¹⁶ | ASTM D257 |
| Arc Resistance, sec | 125 | 125 | ASTM D495 |
| Comparative Tracking Index, V | 150 | 150 | UL 746A |
| Insulation Resistance, ohm (90°C, 95% RH, 48 hr) | 1 x 10 ¹² | 1 x 10 ¹² | |
| Mold Shrinkage ⁽⁶⁾ m/m, Flow/Transverse | 0.003 / 0.005 | 0.003 / 0.005 | |
| Density, g/cc | 1.68 | 1.68 | ISO 1183A |
| Water Absorption, % | 0.02 | 0.02 | ASTM D570 |
| Color | Natural | Black | |

(5) Test specimen molding conditions: Stock Temperature, 315-345° ; Mold Temperature, 135° C

(6) Measured on 102 mm X 102 mm X 3.2 mm Plaques, Edge Gated

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