

For more information and technical assistance contact:

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Ryton[®] R-4 Polyphenylene Sulfide Resins

Ryton[®] R-4 PPS is a 40% fiberglass reinforced polyphenylene sulfide compound that provides outstanding chemical resistance and mechanical properties even at elevated temperatures.

Nominal Engineering Properties ⁽¹⁾	R-4	R-4 02	Test Method
Tensile Strength, Ksi	23.0	22.0	ASTM D638
Elongation, %	1.1	1.0	ASTM D638
Flexural Strength, Ksi	30.0	28.0	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	6.5	6.0	ASTM D256
Compressive Strength, Ksi	38.0	38.0	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	20	20	
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, BTU-in/hr-ft ² ·°F	2.2	2.2	
Dielectric Strength, V/mil	500	500	ASTM D149
Dielectric Constant, 78° F			ASTM D150
1kHz	3.8	3.8	
1MHz	3.8	3.8	
Dissipation Factor, 78°F			ASTM D150
1 kHz	0.002	0.002	
1 MHz	0.002	0.002	
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	130	130	UL 746A
Insulation Resistance, ohm (90°C, 95% RH, 48 hr)	1 x 10 ¹¹	1 x 10 ¹¹	
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, %	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 January, 2008

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Nominal Engineering Properties ⁽⁵⁾	R-4	R-4 02	Method
Tensile Strength, MPa	150	145	ISO 527
Elongation, %	1.2	1.1	ISO 527
Flexural Strength, MPa	210	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	265	265	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	20	20	
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	0.32	0.32	
Dielectric Strength, kV/mm	20	20	ASTM D149
Dielectric Constant, 25°C			ASTM D150
1kHz	3.8	3.8	
1MHz	3.8	3.8	
Dissipation Factor, 25°C			ASTM D150
1 kHz	0.002	0.002	
1 MHz	0.002	0.002	
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	130	130	UL 746A
Insulation Resistance, ohm (90°C, 95% RH, 48 hr)	1 x 10 ¹¹	1 x 10 ¹¹	
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° C; Mold Temperature, 135° F

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

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