



# Data Sheet

## Nominal Engineering Properties of Ryton® R-4-230

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

Property*	Test Method	R-4-230NA	R-4-230BL
Tensile Strength, MPa	ISO 527	170	155
Elongation, %	ISO 527	1.2	1.0
Flexural Strength, MPa	ISO 178	235	210
Flexural Modulus, GPa	ISO 178	14	14
Izod Impact, kJ/m <sup>2</sup>	ISO 180A		
Notched		9.0	8.0
Unnotched		30	20
Compressive Strength, MPa	ISO 604	260	260
Heat Deflection Temperature, 1.8 MPa, °C**	ISO 75	>260	>260
UL Temperature Index, °C	UL 746B	200 / 220	200 / 220
Coefficient of Linear Thermal Exp., x 10 <sup>-6</sup> 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	UL 94	V-0 / 5VA	V-0 / 5VA
Thermal Conductivity, W/m-K		0.31	0.31
Dielectric Strength, kV/mm	ASTM D149	20	20
Dielectric Constant, 25°C	ASTM D150		
1 kHz		3.8	3.8
1 MHz		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	ASTM D257	1 x 10 <sup>16</sup>	1 x 10 <sup>16</sup>
Arc Resistance, sec	ASTM D495	125	125
Comparative Tracking Index, V	UL 746A	150	150
Insulation Resistance, ohm (90°C, 95% RH, 48 hr)		1 x 10 <sup>12</sup>	1 x 10 <sup>12</sup>
Mold Shrinkage,*** m/m, Flow / Transverse		0.003 / 0.005	0.003 / 0.005
Density, g/cc	ISO 1183A	1.65	1.65
Water Absorption, %	ASTM D570	0.02	0.02
Color		Natural	Black

\*Test specimen molding conditions: Stock Temperature, 315-345°C; Mold Temperature, 135°C

\*\*Annealed 2 hours at 200°C

\*\*\*Measured on 102 mm X 102 mm X 3.2 mm 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.

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Another quality product from



The Woodlands, Texas



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Property*	Test Method	R-4-230NA	R-4-230BL
Tensile Strength, Ksi	ASTM D638	26.0	24.0
Elongation, %	ASTM D638	1.2	1.1
Flexural Strength, Ksi	ASTM D790	34.0	31.0
Flexural Modulus, Msi	ASTM D790	2.1	2.1
Izod Impact, ft-lb/in, 1/8 in specimen	ASTM D256		
Notched		1.6	1.4
Unnotched		9.0	7.0
Compressive Strength, Ksi	ASTM D695	38.0	38.0
Heat Deflection Temperature, 264 psi, °F**	ASTM D648	>500	>500
UL Temperature Index, °C	UL 746B	200 / 220	200 / 220
Coefficient of Linear Thermal Exp., x 10 <sup>-6</sup> 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	UL 94	V-0 / 5VA	V-0 / 5VA
Thermal Conductivity, BTU-in/hr-ft <sup>2</sup> .°F		2.1	2.1
Dielectric Strength, V/mil	ASTM D149	500	500
Dielectric Constant, 78°F	ASTM D150		
1 kHz		3.8	3.8
1 MHz		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	ASTM D257	1 x 10 <sup>16</sup>	1 x 10 <sup>16</sup>
Arc Resistance, sec	ASTM D495	125	125
Comparative Tracking Index, V	UL 746A	150	150
Insulation Resistance, ohm (90°C, 95% RH, 48 hr)		1 x 10 <sup>12</sup>	1 x 10 <sup>12</sup>
Mold Shrinkage,*** in/in, Flow / Transverse		0.003 / 0.005	0.003 / 0.005
Density, g/cc	ASTM D792	1.65	1.65
Water Absorption, %	ASTM D570	0.02	0.02
Color		Natural	Black

\*Test specimen molding conditions: Stock Temperature, 600-650°F; Mold Temperature, 275°F

\*\*Annealed 2 hours at 400°F

\*\*\*Measured on 4 in X 4 in X 1/8 in Plaques, Edge Gated

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