RYTON®
POLYPHENYLENE SULFIDE RESINS

Data Sheet

Nominal Engineering Properties of Ryton® BR42B

Ryton® BR42B and Ryton® BR42C are 40% fiberglass reinforced polyphenylene sulfide compounds specially formulated to have a low coefficient of friction for use in low surface friction and wear applications.

Property*	Test Method	BR42B	BR42C
Tensile Strength, MPa	ISO 527	190	175
Elongation, %	ISO 527	1.7	1.6
Flexural Strength, MPa	ISO 178	280	250
Flexural Modulus, GPa	ISO 178	14	14
Izod Impact, kJ/m²	ISO 180A		
Notched		9.0	7.0
Unnotched		40	35
Compressive Strength, MPa	ASTM D695	250	250
Heat Deflection Temperature, 1.8 MPa, °C**	ASTM D648	>260	>260
UL Temperature Index, °C	UL 746B	180	180
Coefficient of Linear Thermal Exp., x 10^{-6} m/m/°C	ASTM E831		
Axial Direction, -50°C to 50°C		15	15
Axial Direction, 100°C to 200°C		10	10
Transverse Direction, -50°C to 50°C		40	40
Transverse Direction, 100°C to 200°C		85	85
Flammability Rating	UL 94	V-0	V-0
Thermal Conductivity, W/m·K		0.33	0.33
Dielectric Strength, kV/mm	ASTM D149	20	20
Dielectric Constant, 25°C	ASTM D150		
1 kHz		3.6	3.6
1 MHz		3.6	3.6
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^{15}	1 x 10^{15}
Comparative Tracking Index, V	UL 746A	150	150
Insulation Resistance, ohm (90°C, 95% RH, 48 hr)		1 x 10^{11}	1 x 10^{11}
Mold Shrinkage,*** m/m, Flow / Transverse		0.002 / 0.005	0.002 / 0.005
Density, g/cc	ASTM D792	1.75	1.75
Water Absorption, %	ASTM D570	0.02	0.02
Color		Natural	Black
Wear Rate,**** mm/hr	ASTM D3702	1 X 10^{-3}	
Coefficient of Friction****	ASTM D3702	0.32	

*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
****Against 52100 steel; 100 hours; 22.7 kg load (1.7 MPa); 36 RPM; Dry; Ambient Temperature; PV=2500

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.

January 2004

For more information and technical assistance contact:

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Property*	Test Method	BR42B	BR42C
Tensile Strength, Ksi	ASTM D638	28.0	26.0
Elongation, %	ASTM D638	1.7	1.6
Flexural Strength, Ksi	ASTM D790	40.0	35.5
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		13.0	11.0
Compressive Strength, Ksi	ASTM D695	36.0	36.0
Heat Deflection Temperature, 264 psi, °F**	ASTM D648	>500	>500
UL Temperature Index, °C	UL 746B	180	180
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		10	10
Transverse Direction, -50°C to 50°C		40	40
Transverse Direction, 100°C to 200°C		85	85
Flammability Rating	UL 94	V-0	V-0
Thermal Conductivity, BTU·in/hr·ft²·°F		2.3	2.3
Dielectric Strength, V/mil	ASTM D149	500	500
Dielectric Constant, 78°F	ASTM D150		
1 kHz		3.6	3.6
1 MHz		3.6	3.6
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^{15}	1 x 10^{15}
Comparative Tracking Index, V	UL 746A	150	150
Insulation Resistance, ohm (90°C, 95% RH, 48 hr)		1 x 10^{11}	1 x 10^{11}
Mold Shrinkage,*** in/in, Flow / Transverse		0.002 / 0.005	0.002 / 0.005
Density, g/cc	ASTM D792	1.75	1.75
Water Absorption, %	ASTM D570	0.02	0.02
Color		Natural	Black
Wear Rate,**** in/hr	ASTM D3702	5 X 10^{-5}	
Coefficient of Friction****	ASTM D3702	0.32	

*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
****Against 52100 steel; 100 hours; 50 pound load (250 psi); 36 RPM; Dry; Ambient Temperature; PV=2500

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