

Ryton® R-4-200NA

polyphenylene sulfide

Ryton® R-4-200NA and R-4-200BL 40% glass fiber reinforced polyphenylene sulfide compounds provide enhanced mechanical strength and low

maintenance molding using conventional molding equipment

General

Material Status	• Commercial: Active	
Availability	• Asia Pacific • Europe	• Latin America • North America
Filler / Reinforcement	• Glass Fiber, 40% Filler by Weight	
Features	• Good Strength	
Uses	• Automotive Applications	
RoHS Compliance	• RoHS Compliant	
Automotive Specifications	• FORD WSL-M4D807-A	• PSA Peugeot-Citroën SPA X62 5101
Appearance	• Natural Color	
Forms	• Pellets	
Processing Method	• Injection Molding	

Physical

	Typical Value	Unit	Test method
Density / Specific Gravity	1.68		ASTM D792
Molding Shrinkage ¹			Internal Method
Flow : 3.20 mm	0.20	%	
Across Flow : 3.20 mm	0.50	%	
Water Absorption			
24 hr	0.020	%	ASTM D570
24 hr, 23°C	0.030	%	ISO 62
Saturation, 23°C	0.26	%	Internal Method
Equilibrium, 23°C, 50% RH	0.25	%	Internal Method

Mechanical

	Typical Value	Unit	Test method
Tensile Modulus	15600	MPa	ISO 527-1
Tensile Stress			
--	200	MPa	ISO 527-2
--	193	MPa	ASTM D638
-- ²	194	MPa	ISO 527-2
Tensile Strain			
Break	1.7	%	ISO 527-2
Break	1.6	%	ASTM D638
Break ²	1.8	%	ISO 527-2

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Mechanical	Typical Value	Unit	Test method
Flexural Modulus			
--	14500	MPa	ASTM D790
--	14000	MPa	ISO 178
Flexural Stress			
--	285	MPa	ISO 178
--	269	MPa	ASTM D790
Compressive Strength	275	MPa	ASTM D695
Shear Strength	96.0	MPa	ASTM D732
Poisson's Ratio	0.40		ISO 527

Impact	Typical Value	Unit	Test method
Charpy Notched Impact Strength			ISO 179
--	8.7	kJ/m ²	
-- ²	8.8	kJ/m ²	
Charpy Unnotched Impact Strength	53	kJ/m ²	ISO 179
Notched Izod Impact			
3.18 mm	91	J/m	ASTM D256
--	9.0	kJ/m ²	ISO 180/A
Unnotched Izod Impact			
3.18 mm	640	J/m	ASTM D4812
--	40	kJ/m ²	ISO 180

Hardness	Typical Value	Unit	Test method
Rockwell Hardness			ASTM D785
M-Scale	100		
R-Scale	120		

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed	265	°C	
Melting Temperature	280	°C	ISO 11357-3
CLTE			ASTM E831
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	4.0E-5	cm/cm/°C	
Transverse : 100 to 200°C	8.5E-5	cm/cm/°C	
Thermal Conductivity	0.33	W/m/K	ASTM E1530
UL Temperature Rating	200 to 220	°C	UL 746B

Electrical	Typical Value	Unit	Test method
Surface Resistivity	1.0E+16	ohms	ASTM D257
Volume Resistivity	1.0E+16	ohms-cm	ASTM D257
Dielectric Strength	22	kV/mm	ASTM D149

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Electrical	Typical Value	Unit	Test method
Dielectric Constant			ASTM D150
25°C, 1 kHz	3.90		
25°C, 1 MHz	3.80		
Dissipation Factor			ASTM D150
25°C, 1 kHz	2.0E-3		
25°C, 1 MHz	2.0E-3		
Arc Resistance	125	sec	ASTM D495
Comparative Tracking Index (CTI)	PLC 4		UL 746A
Comparative Tracking Index	175	V	IEC 60112
Insulation Resistance ³ (90°C)	1.0E+11	ohms	

Flammability	Typical Value	Unit	Test method
Flame Rating (1.5 mm)	V-0		UL 94
Oxygen Index	57	%	ASTM D2863

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 Measured on 102 mm x 102 mm x 3.2 mm plaques, edge gated.

² 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.

³ 95%RH, 48 hr

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