

# Ryton® R-4-270

## polyphenylene sulfide

Ryton® R-4-270, 40% glass fiber reinforced polyphenylene sulfide compounds provide enhanced mechanical strength after constant or repeated exposure to high temperature water. Its faster crystallization of the melt can result in shorter cycle times.

- R-4-270NA
- R-4-270BL

### General

Material Status	• Commercial: Active
Availability	• Asia Pacific • Europe • Latin America • North America
Filler / Reinforcement	• Glass Fiber, 40% Filler by Weight
Features	• Chemical Resistant • Good Processability • High Strength
RoHS Compliance	• RoHS Compliant
Appearance	• Black • Natural Color
Forms	• Pellets

Physical	Typical Value	Unit	Test method
Density / Specific Gravity <sup>1</sup>	1.67		ISO 1183
Molding Shrinkage <sup>2</sup>			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	0.020	%	ISO 62
Saturation, 23°C	0.090	%	Internal Method
Equilibrium, 23°C, 50% RH	0.060	%	Internal Method

Mechanical	Typical Value	Unit	Test method
Tensile Modulus	15300	MPa	ISO 527-1
Tensile Stress			ISO 527-2
Break	200	MPa	
Break <sup>3</sup>	197	MPa	
Tensile Strain (Break)	1.8	%	ISO 527-2
Flexural Modulus	13500	MPa	ISO 178
Flexural Stress	290	MPa	ISO 178
Compressive Strength	285	MPa	ASTM D695



# Ryton® R-4-270

## polyphenylene sulfide

Impact	Typical Value	Unit	Test method
Charpy Notched Impact Strength	9.3	kJ/m <sup>2</sup>	ISO 179
Charpy Unnotched Impact Strength	57	kJ/m <sup>2</sup>	ISO 179
Notched Izod Impact Strength	10	kJ/m <sup>2</sup>	ISO 180/A
Unnotched Izod Impact Strength	50	kJ/m <sup>2</sup>	ISO 180

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load 1.8 MPa, Unannealed	265	°C	ASTM D648
Melting Temperature	280	°C	ISO 11357-3
CLTE			ISO 11359-2
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	4.5E-5	cm/cm/°C	
Transverse : 100 to 200°C	8.5E-5	cm/cm/°C	
Thermal Conductivity	0.32	W/m/K	ASTM E1530

Electrical	Typical Value	Unit	Test method
Volume Resistivity	1.0E+16	ohms·cm	ASTM D257
Dielectric Strength	20	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
25°C, 1 kHz	4.00		
25°C, 1 MHz	4.00		
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

Flammability	Typical Value	Unit	Test method
Flame Rating (1.5 mm)	• •	V-0 5VA	UL 94

Additional Information	Typical Value	Unit
Hydrolytic Stability <sup>4</sup>		
Tensile Strength Retained	> 75	%
Weight Gain	< 0.50	%



# Ryton® R-4-270

## polyphenylene sulfide

---

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.

<sup>1</sup> Method A

<sup>2</sup> Measured on 102 mm x 102 mm x 3.2 mm plaques, edge gated.

<sup>3</sup> 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.

<sup>4</sup> Test specimens aged 1000 hours in water at 140°C (248°F).

