

Ryton® R-4-270NA polyphenylene sulfide

Ryton® R-4-270NA and R-4-270BL, 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.

\sim		n		r	α	ı
\circ	ᆫ		$\overline{}$		u	L

Gerleitti				
Material Status	 Commercial: Active 			
Availability	Asia PacificEurope		atin America orth America	
Filler / Reinforcement	Glass Fiber, 40% Filler k			
Features	Chemical Resistant Good Processability	, ,	igh Strength	
RoHS Compliance	RoHS Compliant			
Appearance	Natural Color			
Forms	• Pellets			
Physical		Typical Value	Unit	Test method
Density / Specific Gravity ¹		1.67		ISO 1183
Molding Shrinkage ²				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	МРа	
Break ³		197	МРа	
Tensile Strain (Break)		1.8	%	ISO 527-2
Flexural Modulus		13500	МРа	ISO 178
Flexural Stress		290	MPa	ISO 178
Compressive Strength		285	MPa	ASTM D695

Ryton° R-4-270NA polyphenylene sulfide

Charpy Notched Impact Strength 9.3 kJ/m² ISO 179 Charpy Unnotched Impact Strength 57 kJ/m² ISO 180 ISO 180 ISO 180 ISO	Impact	Typical Value Uni	it	Test method
Notiched Izod Impact Strength 10 kJ/m² ISO 180/A Unnotched Izod Impact Strength 50 kJ/m² ISO 180 Thermal Typical Value Unit Test method Deflection Temperature Under Load 265 °C 1.8 MPa, Unannealed 265 °C Melting Temperature 280 °C ISO 1357-3 CLTE ISO 1359-2 Flow: -50 to 50°C 1.5E-5 cm/cm/°C ISO 1359-2 Flow: 100 to 200°C 1.0E-5 cm/cm/°C Transverse: -50 to 50°C 4.5E-5 cm/cm/°C Transverse: -50 to 50°C 4.5E-5 cm/cm/°C ASTM E1530 Electrical Typical Value Unit Test method Volume Resistivity 1.0E+16 ohms·cm ASTM D257 Dielectric Strength 20 kV/mm ASTM D150 25°C, 1 kHz 4.00 25°C, 1 kHz 4.00 25°C, 1 kHz 4.00 25°C, 1 kHz 4.00 25°C, 1 kHz 2.0E-3 25°C, 1 kHz 4.00 25°C, 1 kHz 2.0E-3 25°C, 1 kHz 4.00 25°C, 1 kHz 2.0E-3 2.0E-3 2.0E-3	Charpy Notched Impact Strength	9.3 kJ/	m²	ISO 179
Unnotched Izod Impact Strength 50 kJ/m² ISO 180 Thermal Typical Value Unit Test method Deflection Temperature Under Load 265 °C 1.8 MPa, Unannealed 265 °C Melting Temperature 280 °C ISO 11357-3 CLTE ISO 100 50°C I.5E-5 cm/cm/°C Flow: 100 to 200°C 1.0E-5 cm/cm/°C Flow: 100 to 200°C Transverse: -50 to 50°C 4.5E-5 cm/cm/°C Transverse: Indo to 200°C Thermal Conductivity 0.32 W/m/k ASTM E1530 Electrical Typical Value Unit Test method Volume Resistivity 1.0E+16 ohmscm ASTM D150 Dielectric Strength 20 kV/mm ASTM D150 25°C, 1 kHz 4.00 ASTM D150 25°C, 1 kHz 4.00 ASTM D150 25°C, 1 kHz 2.0E-3 ASTM D495 25°C, 1 kHz 2.0E-3 ASTM D495 Comparative Tracking Index (CTI) PLC 4 U. 746A Comparative Tracking Index (CTI) Typical Value Unit Test method Flammability Typical Value Unit	Charpy Unnotched Impact Strength	57 kJ/	m²	ISO 179
Thermal Typical Value Unit Test method Deflection Temperature Under Load 265 °C 1.8 MPa, Unanneoled 265 °C 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 ohmscm ASTM D257 Dielectric Strength 20 kV/mm ASTM D150 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 2.0E-3 4.00 25	Notched Izod Impact Strength	10 kJ/	m²	ISO 180/A
Deflection Temperature Under Load ASTM D648 18 MPa, Unannealed 265 °C Melting Temperature 280 °C ISO 11357-3 CLTE ISO 1050°C ISE-5 cm/cm/°C Flow: -50 to 50°C 1.6E-5 cm/cm/°C Flow: norm/°C Transverse: -50 to 50°C 4.5E-5 cm/cm/°C Transverse: norm/°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 D160 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 2.0E-3 3.0E-3 25°C, 1 kHz 0.0E-3 0.0E-3	Unnotched Izod Impact Strength	50 kJ/	m²	ISO 180
Deflection Temperature Under Load ASTM D648 18 MPa, Unannealed 265 °C Melting Temperature 280 °C ISO 11357-3 CLTE ISO 1050°C ISE-5 cm/cm/°C Flow: -50 to 50°C 1.6E-5 cm/cm/°C Flow: norm/°C Transverse: -50 to 50°C 4.5E-5 cm/cm/°C Transverse: norm/°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 D160 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 2.0E-3 3.0E-3 25°C, 1 kHz 0.0E-3 0.0E-3				
1.8 MPa, Unannealed 265 °C Melting Temperature 280 °C ISO 11357-3 CLTE ISO 11359-2 Flow: -50 to 50°C 1.5E-5 cm/cm/°C ISO 11359-2 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 Transverse: 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 4.00 25°C, 1 kHz 4.00 25°C, 1 kHz 4.00 25°C, 1 kHz 4.00 25°C, 1 kHz 2.0E-3 25°C, 1 kHz 2.0E-3 25°C, 1 kHz 2.0E-3 25°C, 1 kHz 2.0E-3 25°C, 1 kHz 2.0E-3 2.0E-3 2.0E-3 25°C, 1 kHz 2.0E-3		Typical Value Uni	it	
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 D150 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 4.00 4.00 25°C, 1 kHz 2.0E-3 4.00 Comparative Tracking Index (CTI) PLC 4 UL 746A Comparative Tracking Index Typical Value Unit	•			ASTM D648
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 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 4.00 ASTM D150 25°C, 1 kHz 4.00 ASTM D150 25°C, 1 kHz 4.00 ASTM D150 25°C, 1 kHz 2.0E-3 ASTM D150 25°C, 1 kHz 2.0E-3 ASTM D495 Comparative Tracking Index (CTI) PLC 4 UL 746A Comparative Tracking Index (CTI) PLC 4 UL 746A Comparative Tracking Index 175 V IEC 60I12 Flame Rating (1.5 mm) Typical Value Unit Test method Flame Rating (1.5 mm) Typical Value Unit Test method Flame Rating (1.5 mm) Typical Value Unit Test method Potation of Typical Val				
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 D495 Dielectric Constant 4.00 ASTM D150 25°C, 1 kHz 4.00 ASTM D150 25°C, 1 kHz 2.0E-3 ASTM D150 25°C, 1 kHz 2.0E-3 ASTM D495 25°C, 1 kHz 2.0E-3 ASTM D495 Comparative Tracking Index (CTI) PLC 4 UL 746A Comparative Tracking Index (CTI) PLC 4 UL 746A Comparative Tracking Index 175 V IEC 60I12 Flame Rating (1.5 mm) Y-0 UL 94 Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %		280 °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 ASTM D150 25°C, 1 MHz 4.00 ASTM D150 25°C, 1 kHz 2.0E-3 ASTM D150 25°C, 1 kHz 2.0E-3 ASTM D495 25°C, 1 kHz 2.0E-3 ASTM D495 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) Typical Value Unit Test method Additional Information Typical Value Unit Test method Typical Value Unit			, ,	ISO 11359-2
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 kHz 4.00 4.00 4.00 4.00 Dissipation Factor ASTM D150 4.00				
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 4.00 25°C, 1 kHz 2.0E-3 4.00 25°C, 1 kHz 2.0E-3 4.0E-3 25°C, 1 kHz 2.0E-3 4.0E	Flow: 100 to 200°C			
Thermal Conductivity0.32 W/m/kASTM E1530ElectricalTypical Value UnitTest methodVolume Resistivity1.0E+16 ohms·cmASTM D257Dielectric Strength20 kV/mmASTM D149Dielectric ConstantASTM D15025°C, 1 kHz4.0025°C, 1 kHz4.00Dissipation FactorASTM D15025°C, 1 kHz2.0E-325°C, 1 kHz2.0E-325°C, 1 MHz2.0E-3Arc Resistance125 secASTM D495Comparative Tracking Index (CTI)PLC 4UL 746AComparative Tracking Index175 VIEC 60112FlammabilityTypical Value UnitTest methodFlame Rating (1.5 mm)V-0UL 94Additional InformationTypical Value UnitHydrolytic Stability 4 Tensile Strength Retained> 75 %	Transverse: -50 to 50°C			
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 kHz 4.00 Dissipation Factor ASTM D150 25°C, 1 kHz 2.0E-3 25°C, 1 kHz 2.0E-3 Arc Resistance 125 sec ASTM D495 Comparative Tracking Index (CTI) PLC 4 UL 746A Comparative Tracking Index Typical Value Unit Test method Flame Rating (1.5 mm) Typical Value Unit Hydrolytic Stability ⁴ Tensile Strength Retained > 75 %	Transverse : 100 to 200°C	8.5E-5 cm	n/cm/°C	
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 4.00 25°C, 1 MHz 4.00 ASTM D150 25°C, 1 kHz 2.0E-3 2.0E-3 25°C, 1 kHz 2.0E-3 2.0E-3 25°C, 1 MHz 2.0E-3 4.00 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 UL 94 Additional Information Typical Value Unit Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %	Thermal Conductivity	0.32 W/	m/K	ASTM E1530
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 4.00 25°C, 1 MHz 4.00 ASTM D150 25°C, 1 kHz 2.0E-3 2.0E-3 25°C, 1 kHz 2.0E-3 2.0E-3 25°C, 1 MHz 2.0E-3 4.00 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 UL 94 Additional Information Typical Value Unit Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %			•.	
Dielectric Strength20 kV/mmASTM D149Dielectric ConstantASTM D15025°C, 1 kHz4.0025°C, 1 MHz4.00Dissipation FactorASTM D15025°C, 1 kHz2.0E-325°C, 1 kHz2.0E-3Arc Resistance125 secASTM D495Comparative Tracking Index (CTI)PLC 4UL 746AComparative Tracking Index175 VIEC 60112FlammabilityTypical Value UnitTest methodFlame Rating (1.5 mm)V-0 5VAUL 94Additional InformationTypical Value UnitHydrolytic Stability 4 Tensile Strength Retained> 75 %				
Dielectric Constant 25°C, 1 kHz 4.00 25°C, 1 MHz 4.00 Dissipation Factor 25°C, 1 kHz 20E-3 25°C, 1 kHz 20E-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) Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %	·			
25°C, 1 kHz 4.00 25°C, 1 MHz 4.00 Dissipation Factor ASTM DI50 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 UL 94 Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %		20 kV,	/mm	
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 UL 94 Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %				ASTM D150
Dissipation Factor 25°C, 1 kHz 25°C, 1 kHz 25°C, 1 MHz 25°C, 1 MHz 20E-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 Flame Rating (1.5 mm) Typical Value Unit Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained ASTM D150 Typical Value Unit Test method Typical Value Unit Typical Value Unit	•			
25°C, 1 MHz 2.0E-3 25°C, 1 MHz 2.0E-3 Arc Resistance 125 sec Comparative Tracking Index (CTI) PLC 4 UL 746A Comparative Tracking Index Typical Value Unit Flammability Typical Value Unit Flame Rating (1.5 mm) Typical Value Unit Additional Information Typical Value Unit Hydrolytic Stability Tensile Strength Retained 2.0E-3		4.00		
25°C, 1 MHz 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 Flame Rating (1.5 mm) Typical Value Unit Additional Information Typical Value Unit Test method Typical Value Unit Test method Typical Value Unit Test method Typical Value Unit Typical Value Unit Typical Value Unit	Dissipation Factor			ASTM D150
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 4 Tensile Strength Retained > 75 %	25°C, 1 kHz	2.0E-3		
Comparative Tracking Index (CTI) Comparative Tracking Index PLC 4 UL 746A Typical Value Unit Test method Flame Rating (1.5 mm) PLC 4 Typical Value Unit Test method V-0 5VA UL 94 Additional Information Typical Value Unit	25°C, 1 MHz	2.0E-3		
Comparative Tracking Index Flammability Typical Value Unit Test method Flame Rating (1.5 mm) V-0 5VA UL 94 Additional Information Typical Value Unit	Arc Resistance	125 sec	С	ASTM D495
Flammability Typical Value Unit Test method Flame Rating (1.5 mm) V-0 5VA UL 94 Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %	Comparative Tracking Index (CTI)	PLC 4		UL 746A
Flame Rating (1.5 mm) Lambda V-0 5VA UL 94 Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %	Comparative Tracking Index	175 V		IEC 60112
Additional Information Additional Information Typical Value Unit Hydrolytic Stability 4 Tensile Strength Retained > 75 %	Flammability	Typical Value Uni	it	Test method
Additional Information Typical Value Unit Hydrolytic Stability ⁴ Tensile Strength Retained > 75 %	Flame Pating (15 mm)	• V-0		111 04
Hydrolytic Stability ⁴ Tensile Strength Retained > 75 %		• 5VA		
Tensile Strength Retained > 75 %	Additional Information	Typical Value Uni	it	
	Hydrolytic Stability ⁴			
Weight Gain < 0.50 %	Tensile Strength Retained	> 75 %		
	Weight Gain	< 0.50 %		

Ryton° R-4-270NA polyphenylene sulfide

Typical Value Unit	
135 to 150 °C	
2.0 to 4.0 hr	
295 to 315 °C	
305 to 325 °C	
315 to 345 °C	
305 to 325 °C	
320 to 330 °C	
135 to 150 °C	
	135 to 150 °C 2.0 to 4.0 hr 295 to 315 °C 305 to 325 °C 315 to 345 °C 305 to 325 °C 305 to 325 °C

Notes

Typical properties: these are not to be construed as specifications.

- ¹ Method A
- ² Measured on 102 mm x 102 mm x 3.2 mm plaques, edge gated.
- ³ 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.
- ⁴ Test specimens aged 1000 hours in water at 140°C (248°F).

www.syensqo.com

Safety Data Sheets (SDS) are available by emailing us or contacting your sales representative. Always consult the appropriate SDS before using any of our products.

Neither Syensqo nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this product, related information or its use. Some applications of which Syensqo's products may be proposed to be used are regulated or restricted by applicable laws and regulations or by national or international standards and in some cases by Syensqo's recommendation, including applications of food/feed, water treatment, medical, pharmaceuticals, and personal care. Only products designated as part of the Solviva® family of biomaterials may be considered as candidates for use in implantable medical devices. The user alone must finally determine suitability of any information or products for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. The information and the products are for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right.

All trademarks and registered trademarks are property of the companies that comprise the Syensqo or their respective owners.

