

Solvay Specialty Polymers Radel® R-5100 Polyphenylsulfone (PPSU), Filled

Category : Polymer , Thermoplastic , Polysulfone (PSU) , Polyphenylsulfone, Glass or Carbon Fiber Reinforced

Material Notes:

Radel® R-5100 is an opaque, general purpose polyphenylsulfone (PPSU) for injection molding, that offers exceptional hydrolytic stability, and toughness superior to other commercially-available, high-temperature engineering resins. This resin also offers a high deflection temperature and outstanding resistance to environmental stress cracking. Radel® polymers are inherently flame retardant, provide excellent thermal stability and possess good electrical properties. Features: Acid Resistant; Autoclave Sterilizable; Base Resistant; Biocompatible; E-beam Sterilizable; Ethylene Oxide Sterilizable; Flame Retardant; General Purpose; Good Chemical Resistance; Good Sterilizability; Good Thermal Stability; Heat Sterilizable; High ESCR (Stress Crack Resist.); High Heat Resistance; Hydrolytically Stable; Radiation (Gamma) Resistant; Radiation Sterilizable; Radiotranslucent; Steam Resistant; Steam Sterilizable; Ultra High Toughness Uses: Aerospace Applications; Aircraft Applications; Connectors; Dental Applications; Food Service Applications; Hospital Goods; Medical Devices; Medical/Healthcare Applications; Plumbing Parts; Surgical Instruments Automotive Specifications ASTM D6394 SP0312 Information provided by Solvay Specialty Polymers.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Radel-R-5100-Polyphenylsulfone-PPSU-Filled.php

Physical Properties	Metric	English	Comments
Density	1.30 g/cc	0.0470 lb/in ³	ASTM D792
Water Absorption	0.37 % @Time 86400 sec	0.37 % @Time 24.0 hour	ISO 62
Linear Mold Shrinkage, Flow	0.0070 cm/cm	0.0070 in/in	

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	69.6 MPa	10100 psi	ASTM D638
Tensile Strength, Yield	69.6 MPa	10100 psi	ASTM D638
Elongation at Break	60 %	60 %	ASTM D638
Elongation at Yield	7.2 %	7.2 %	ASTM D638
Tensile Modulus	2.34 GPa	339 ksi	ASTM D638
Flexural Yield Strength	91.0 MPa	13200 psi	ASTM D790
Flexural Modulus	2.41 GPa	350 ksi	ASTM D790
Compressive Strength	98.9 MPa	14300 psi	ASTM D695
Compressive Modulus	1.73 GPa	251 ksi	ASTM D695
Poissons Ratio	0.42	0.42	ASTM E132

Shear Strength Mechanical Properties	62.7 MPa Metric	9090 psi English	ASTM D732 Comments
Izod Impact, Notched	6.90 J/cm	12.9 ft-lb/in	ASTM D256
Izod Impact, Unnotched	NB	NB	ASTM D256
Tensile Impact Strength	399 kJ/mÂ²	190 ft-lb/inÂ²	ASTM D1822

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	56.0 Âµm/m-Â°C	31.1 Âµin/in-Â°F	
Thermal Conductivity	0.350 W/m-K	2.43 BTU-in/hr-ftÂ²-Â°F	ASTM C177
Deflection Temperature at 0.46 MPa (66 psi)	214 Â°C	417 Â°F	Unannealed; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	207 Â°C	405 Â°F	Unannealed; ASTM D648
Glass Transition Temp, Tg	220 Â°C	428 Â°F	ASTM E1356
Flammability, UL94	V-0 @Thickness 0.750 mm	V-0 @Thickness 0.0295 in	
Oxygen Index	38 %	38 %	ASTM D2863

Optical Properties	Metric	English	Comments
Refractive Index	1.672	1.672	ASTM D542

Electrical Properties	Metric	English	Comments
Volume Resistivity	9.00e+15 ohm-cm	9.00e+15 ohm-cm	ASTM D257
Dielectric Constant	3.4 @Frequency 1.00e+6 Hz	3.4 @Frequency 1.00e+6 Hz	ASTM D150
	3.44 @Frequency 60.0 Hz	3.44 @Frequency 60.0 Hz	ASTM D150
Dielectric Strength	14.0 kV/mm	356 kV/in	ASTM D149

Compliance Properties	Metric	English	Comments
NSF	Yes	Yes	NSF 51; NSF 61

Processing Properties	Metric	English	Comments
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Rear Barrel Temperature Processing Properties	321 Â°C Metric	610 Â°F English	Comments
Middle Barrel Temperature	349 Â°C	660 Â°F	
Front Barrel Temperature	349 Â°C	660 Â°F	
Melt Temperature	343 - 388 Â°C	649 - 730 Â°F	
Mold Temperature	138 - 163 Â°C	280 - 325 Â°F	
Drying Temperature	149 Â°C @Time 9000 sec	300 Â°F @Time 2.50 hour	
Moisture Content	<= 0.050 %	<= 0.050 %	
Back Pressure	0.345 - 0.689 MPa	50.0 - 99.9 psi	

Descriptive Properties	Value	Comments
Agency Ratings	FAA FAR 25.853a; ISO 10993	
Availability	Asia Pacific	
	Europe	
	Latin America	
	North America	
Color	Black; Colors; Light Beige; Opaque	
Form	Pellets	
Processing Technique	Blow Molding; Extrusion; Film Extrusion	
	Injection Molding; Machining	
	Profile Extrusion; Sheet Extrusion; Thermoforming	
RoHS Compliance	RoHS Compliant	
Screw Compression Ratio	2.2:1.0	

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