

## Solvay Specialty Polymers Radel<sup>®</sup> R-5000 Polyphenylsulfone (PPSU)

Category : Polymer , Thermoplastic , Polyphenylsulfone (PPSU)

### Material Notes:

Radel<sup>®</sup> R-5000 is a transparent polyphenylsulfone (PPSU) which offers exceptional hydrolytic stability, and toughness superior to other commercially-available, high-temperature engineering resins. This resin also offer high deflection temperatures and outstanding resistance to environmental stress cracking. Radel<sup>®</sup> polymers are inherently flame retardant, provide excellent thermal stability and possess good electrical properties. Features: Acid Resistant; Autoclave Sterilizable; Base Resistant; Biocompatible; Detergent Resistant; E-beam Sterilizable; Ethylene Oxide Sterilizable; Flame Retardant; General Purpose; Good Chemical Resistance; Good Dimensional Stability; Good Electrical Properties; Good Sterilizability; Good Thermal Aging Resistance; 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: Automotive Applications; Dental Applications; Food Service Applications; Hospital Goods; Medical Devices; Medical/Healthcare Applications; Membranes; Surgical Instruments Additional Properties: Steam Sterilization - > 1000 Cycles 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-5000-Polyphenylsulfone-PPSU.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Radel-R-5000-Polyphenylsulfone-PPSU.php)

Physical Properties	Metric	English	Comments
Density	1.29 g/cc	0.0466 lb/in <sup>3</sup>	ASTM D792
Water Absorption	0.37 % @Time 86400 sec	0.37 % @Time 24.0 hour	ISO 62
Water Absorption at Saturation	1.1 %	1.1 %	ASTM D570
Linear Mold Shrinkage, Flow	0.0070 cm/cm @Thickness 3.18 mm	0.0070 in/in @Thickness 0.125 in	
Melt Flow	14 - 20 g/10 min @Load 5.00 kg, Temperature 365 °C	14 - 20 g/10 min @Load 11.0 lb, Temperature 689 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Tensile Strength	69.6 MPa @Thickness 3.18 mm	10100 psi @Thickness 0.125 in	ASTM D638
Elongation at Break	60 - 120 % @Thickness 3.18 mm	60 - 120 % @Thickness 0.125 in	ASTM D638
Elongation at Yield	7.2 % @Thickness 3.18 mm	7.2 % @Thickness 0.125 in	ASTM D638
	2.34 GPa	339 ksi	

Tensile Modulus Mechanical Properties	Metric @ Thickness 3.18 mm	English @ Thickness 0.125 in	ASTM D638 Comments
Flexural Strength	91.0 MPa @Strain 5.00 %, Thickness 3.18 mm	13200 psi @Strain 5.00 %, Thickness 0.125 in	ASTM D790
Flexural Modulus	2.41 GPa @Thickness 3.18 mm	350 ksi @Thickness 0.125 in	ASTM D790
Izod Impact, Notched	6.90 J/cm @Thickness 3.18 mm	12.9 ft-lb/in @Thickness 0.125 in	ASTM D256
Tensile Impact Strength	399 kJ/m <sup>2</sup> @Thickness 3.18 mm	190 ft-lb/in <sup>2</sup> @Thickness 0.125 in	ASTM D1822

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	56.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Thickness 3.18 mm	31.1 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Thickness 0.125 in	
Deflection Temperature at 1.8 MPa (264 psi)	207 $\text{Å}^\circ\text{C}$ @Thickness 3.20 mm	405 $\text{Å}^\circ\text{F}$ @Thickness 0.126 in	Unannealed; ASTM D648
Glass Transition Temp, Tg	220 $\text{Å}^\circ\text{C}$	428 $\text{Å}^\circ\text{F}$	ASTM E1356
Flammability, UL94	V-0 @Thickness 0.762 mm	V-0 @Thickness 0.0300 in	

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	3.44 @Frequency 60.0 Hz	3.44 @Frequency 60.0 Hz	ASTM D150
Dielectric Strength	15.0 kV/mm @Thickness 3.18 mm	381 kV/in @Thickness 0.125 in	ASTM D149
	$\geq 200$ kV/mm @Thickness 0.0254 mm	$\geq 5080$ kV/in @Thickness 0.00100 in	ASTM D149

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

Processing Properties	Metric	English	Comments
Zone 1	338 - 388 Å°C	640 - 730 Å°F	
Zone 2	338 - 388 Å°C	640 - 730 Å°F	
Zone 3	338 - 388 Å°C	640 - 730 Å°F	
Zone 4	338 - 388 Å°C	640 - 730 Å°F	
Zone 5	338 - 388 Å°C	640 - 730 Å°F	
Adapter Temperature	327 - 371 Å°C	621 - 700 Å°F	
Melt Temperature	360 - 391 Å°C	680 - 736 Å°F	
Mold Temperature	138 - 163 Å°C	280 - 325 Å°F	
Die Cooling Temperature	327 - 371 Å°C	621 - 700 Å°F	
Drying Temperature	149 Å°C	300 Å°F	
	171 Å°C	340 Å°F	
	@Time 14400 sec	@Time 4.00 hour	

Descriptive Properties	Value	Comments
Agency Ratings	FAA FAR 25.853a; ISO 10993	
Availability	Asia Pacific	
	Europe	
	Latin America	
	North America	
Color	Clear/Transparent	
Form	Pellets	
Processing Technique	Blow Molding; Extrusion; Film Extrusion	
	Injection Molding; Machining	
	Profile Extrusion; Sheet Extrusion; Thermoforming	
RoHS Compliance	RoHS Compliant	

Descriptive Properties	Value	Comments
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## Contact Songhan Plastic Technology Co.,Ltd.

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