Radel® R-5600
polyphenylsulfone

Radel® R-5600 is a general-purpose very high flow grade of polyphenylsulfone (PPSU), which offers exceptional hydrolytic stability, and toughness superior to other commercially available, high-temperature engineering resins. This resin also offers high deflection temperatures and outstanding resistance to environmental stress cracking. Radel PPSU polymers are inherently flame retardant, provide excellent thermal stability and possess good electrical properties

- Natural Amber: Radel® R-5600 NT

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific • Europe	• Latin America • North America
Features	• Acid Resistant • Base Resistant • Chemical Resistant • Flame Retardant • Good Thermal Stability	• High ESCR (Stress Crack Resist.) • High Heat Resistance • Hydrolytically Stable • Steam Sterilizable • Ultra High Toughness
Uses	• Aerospace Applications • Aircraft Applications	• Food Service Applications
RoHS Compliance	• Contact Manufacturer	
Appearance	• Clear Amber • Clear/Transparent	• Colors Available
Forms	• Pellets	
Processing Method	• Injection Molding	

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.29		ASTM D792
Melt Mass-Flow Rate (MFR) (365°C/5.0 kg)	37	g/10 min	ASTM D1238
Molding Shrinkage - Flow (3.18 mm)	0.70	%	ASTM D955
Water Absorption			ASTM D570
24 hr	0.37	%	
Equilibrium	1.1	%	

Mechanical	Typical Value	Unit	Test method
Tensile Modulus (3.18 mm)	2340	MPa	ASTM D638
Tensile Strength (Yield, 3.18 mm)	69.6	MPa	ASTM D638
Tensile Elongation			ASTM D638
Yield, 3.18 mm	7.2	%	
Break, 3.18 mm	60 to 120	%	
Flexural Modulus (3.18 mm)	2340	MPa	ASTM D790
Flexural Strength (5.0% Strain, 3.18 mm)	91.0	MPa	ASTM D790

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Impact	Typical Value	Unit	Test method
Notched Izod Impact (3.18 mm)	690	J/m	ASTM D256
Tensile Impact Strength (3.18 mm)	399	kJ/m²	ASTM D1822

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed, 3.18 mm	207	°C	
Glass Transition Temperature [1]	220	°C	DSC
CLTE - Flow (3.18 mm)	5.6E-5	cm/cm/°C	ASTM D696

Electrical	Typical Value	Unit	Test method
Volume Resistivity (3.18 mm)	9.0E+15	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
0.0254 mm	> 200	kV/mm	
3.18 mm	15	kV/mm	
Dielectric Constant (3.18 mm, 60 Hz)	3.44		ASTM D150

Flammability	Typical Value	Unit	Test method
Flame Rating [2] (0.76 mm)	V-0		UL 94

Optical	Typical Value	Unit	Test method
Refractive Index	1.672		ASTM D542

Additional Information	Typical Value	Unit
Steam Sterilization - w/ Morpholine [3]	> 1000	Cycles

Injection	Typical Value	Unit
Drying Temperature - Desiccant Dryer	135 to 175	°C
Drying Time - Desiccant Dryer	2.0 to 4.0	hr
Suggested Max Moisture	< 0.050	%
Processing (Melt) Temp	365 to 393	°C
Mold Temperature	150 to 163	°C
Injection Rate	Slow-Moderate	
Back Pressure	1.00 to 3.50	MPa
Screw Compression Ratio	1.8:1.0 to 2.6:1.0	

Extrusion	Typical Value	Unit
Drying Temperature	135 to 175	°C
Drying Time	4.0 to 8.0	hr
Suggested Max Moisture	< 0.010	%
Melt Temperature	343 to 400	°C

Notes

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

[1] Heating rate of 36°F (20°C) per minute.

[2] These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

[3] Cycles passed without cracking, crazing, or rupture.

Steam Autoclave Conditions:
- Temperature: 270°F (132°C)
- Time: 30 minutes/cycle
- Steam Pressure: 27 psig (0.19 MPa)
- Stress Level: 1000 psi (7.0 MPa) in flexure
- Additive: Morpholine at 50 ppm

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