Radel® R-5900
polyphenylsulfone

Radel® R-5900 is a general-purpose 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

Transparent Grade:
- Natural Amber: Radel® R-5900 NT

Opaque Grade:
- Black: Radel® R-5900 BK937
- White: Radel® R-5900 WH001

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific • Europe	• Latin America • North America
Features	• Acid Resistant • Base Resistant • Chemical Resistant • Flame Retardant • Good Flow • Good Thermal Stability	• High ESCR (Stress Crack Resist.) • High Heat Resistance • Hydrolytically Stable • Steam Sterilizable • Ultra High Toughness
Uses	• Appliances • Consumer Applications	• Food Service Applications
Agency Ratings	• ISO 10993	• NSF STD-51
RoHS Compliance	• RoHS Compliant	
Appearance	• Amber	• Clear/Transparent
Forms	• Pellets	
Processing Method	• Injection Molding	

Physical	Typical Value	Unit	Test method
Density / Specific Gravity[1]	1.29		ASTM D792
Melt Mass-Flow Rate (MFR) (365°C/5.0 kg)	33	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	%	

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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)	100	MPa	ASTM D790

Impact	Typical Value	Unit	Test method
Notched Izod Impact (3.18 mm)	690	J/m	ASTM D256

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed, 3.18 mm	207	°C	
Glass Transition Temperature	220	°C	ASTM E1356
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 (0.75 mm, ALL)	V-0		UL 94

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] Base resin and transparent colors; Opaque colors can be up to 1.35

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