Radel® R-5800
polyphenylsulfone

Radel® R-5800 is a high melt flow grade of Radel® polyphenylsulfone (PPSU). It is especially well-suited for parts requiring long flow length with thin walls. Radel® resins offer exceptional hydrolytic stability and toughness superior to other commercially-available, high-temperature engineering resins. They also offer high deflection temperatures and outstanding resistance to environmental stress cracking. Radel® polymers are inherently flame retardant, provide excellent thermal stability and possess good electrical properties.

Additonal Radel® grades include a transparent injection molding grade (R-5000), an opaque, general purpose, injection molding grade (R-5100) and a transparent, extrusion grade (R-5500).

- Transparent: Radel® R-5800 NT
- Black: Radel® R-5800 BK937
- Bone: Radel® R-5800 NT15
- Blue: Radel® R-5800 BU1037
- Transparent Blue: Radel® R-5800 TR BU301

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific • Europe	• Latin America • North America
Features	• Acid Resistant • Autoclave Sterilizable • Base Resistant • Biocompatible • Chemical Resistant • E-beam Sterilizable • Ethylene Oxide Sterilizable • Flame Retardant • 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 • Automotive Applications • Dental Applications • Food Service Applications	• Hospital Goods • Medical Devices • Medical/Healthcare Applications • Surgical Instruments
Agency Ratings	• ISO 10993	
RoHS Compliance	• RoHS Compliant	
Automotive Specifications	• ASTM D6394 SP0313	
Appearance	• Clear Amber	• Colors Available
Forms	• Pellets	
Processing Method	• Extrusion • Injection Molding	• Sheet Extrusion • Thermoforming

Physical	Dry	Conditioned	Unit	Test method
Density / Specific Gravity	1.29	--		ASTM D792

Physical	Dry	Conditioned	Unit	Test method
Melt Mass-Flow Rate (MFR) (365°C/5.0 kg)	20 to 28	--	g/10 min	ASTM D1238
Molding Shrinkage				
Flow : 3.18 mm	0.70	--	%	ASTM D955
Across Flow	0.95	--	%	ISO 294-4
Flow	0.86	--	%	ISO 294-4
Water Absorption				
24 hr	0.37	--	%	ASTM D570
24 hr, 23°C	0.54	--	%	ISO 62
Saturation, 23°C	1.1	--	%	Internal Method
Equilibrium	1.1	--	%	ASTM D570
Equilibrium, 23°C, 50% RH	0.10	--	%	Internal Method

Mechanical	Dry	Conditioned	Unit	Test method
Tensile Modulus				
3.18 mm	2340	--	MPa	ASTM D638
--	2380	2380	MPa	ISO 527-1
Tensile Stress				
Break	76.6	73.6	MPa	ISO 527-2
3.18 mm	69.6	--	MPa	ASTM D638
Tensile Elongation				
Yield, 3.18 mm	7.2	--	%	ASTM D638
Break, 3.18 mm	60 to 120	--	%	ASTM D638
Break	7.5	7.7	%	ISO 527-2
Flexural Modulus				
3.18 mm	2410	--	MPa	ASTM D790
--	2410	--	MPa	ISO 178
Flexural Strength				
5.0% Strain, 3.18 mm	91.0	--	MPa	ASTM D790
--	78.3	--	MPa	ISO 178

Impact	Dry	Conditioned	Unit	Test method
Charpy Notched Impact Strength	64	41	kJ/m²	ISO 179
Charpy Unnotched Impact Strength			kJ/m²	ISO 179
Notched Izod Impact (3.18 mm)	690	--	J/m	ASTM D256
Tensile Impact Strength (3.18 mm)	399	--	kJ/m²	ASTM D1822

Thermal	Dry	Conditioned	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

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Electrical	Dry	Conditioned	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
Comparative Tracking Index	--	150	V	IEC 60112

Flammability	Dry	Conditioned	Unit	Test method
Flame Rating [2]				UL 94
0.76 mm	V-0	V-0		
0.8 mm	--	V-0		

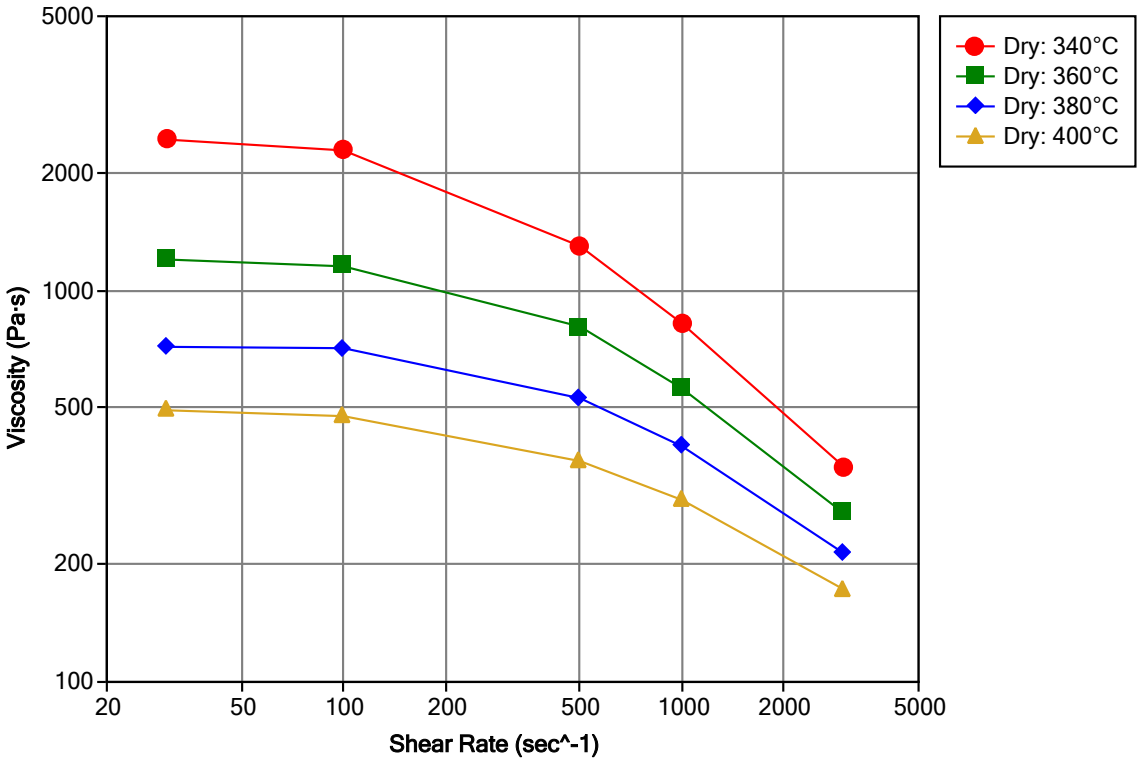
Optical	Dry	Conditioned	Unit	Test method
Refractive Index	1.672	--		ASTM D542

Additional Information	Dry	Conditioned	Unit
Steam Sterilization - w/ Morpholine [3]	> 1000	--	Cycles

Injection	Dry	Unit
Drying Temperature	149	°C
Drying Time	2.5	hr
Processing (Melt) Temp	360 to 391	°C
Mold Temperature	138 to 163	°C
Screw Compression Ratio	2.2:1.0	

Extrusion	Dry	Unit
Drying Temperature	171	°C
Drying Time	4.0	hr

Viscosity vs. Shear Rate (ISO 11403)



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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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.