

## 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.

Additional 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

# Radel® R-5800

## polyphenylsulfone

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/m <sup>2</sup>	ISO 179
Charpy Unnotched Impact Strength			kJ/m <sup>2</sup>	ISO 179
Notched Izod Impact (3.18 mm)	690	--	J/m	ASTM D256
Tensile Impact Strength (3.18 mm)	399	--	kJ/m <sup>2</sup>	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 <sup>1</sup>	220	--	°C	DSC
CLTE - Flow (3.18 mm)	5.6E-5	--	cm/cm/°C	ASTM D696

# Radel® R-5800

## polyphenylsulfone

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 <sup>2</sup>				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 <sup>3</sup>	> 1000	--	Cycles	

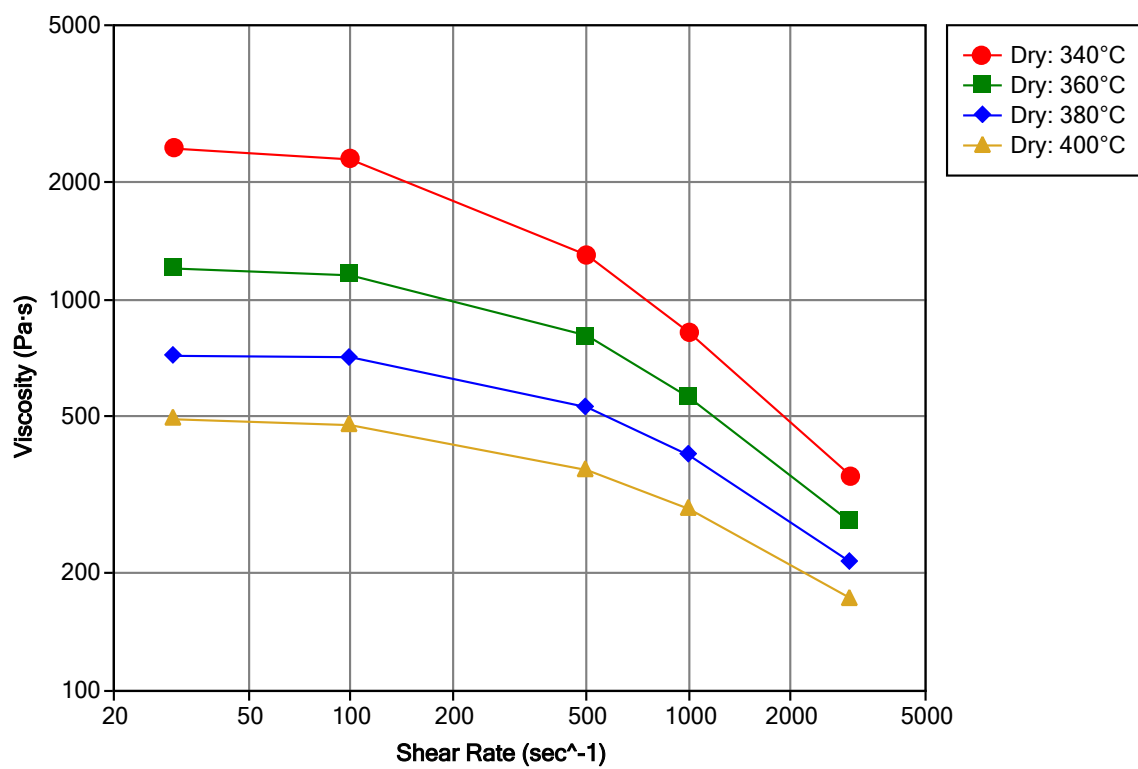
Injection	Dry	Unit
Drying Temperature	149	°C
Drying Time	2.5	hr
Processing (Melt) Temp	360 to 391	°C
Mold Temperature	138 to 163	°C
Screw Compression Ratio	2.2:1.0	

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

# Radel® R-5800

## polyphenylsulfone

### Viscosity vs. Shear Rate (ISO 11403)



# Radel® R-5800

## polyphenylsulfone

---

## Notes

---

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

<sup>1</sup> Heating rate of 36°F (20°C) per minute.

<sup>2</sup> These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

<sup>3</sup> 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

---

## [www.syensqo.com](http://www.syensqo.com)

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.

Neither Syensqo nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this product, related information or its use. Some applications of which Syensqo's products may be proposed to be used are regulated or restricted by applicable laws and regulations or by national or international standards and in some cases by Syensqo's recommendation, including applications of food/feed, water treatment, medical, pharmaceuticals, and personal care. Only products designated as part of the Solviva® family of biomaterials may be considered as candidates for use in implantable medical devices. The user alone must finally determine suitability of any information or products for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. The information and the products are for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right.

All trademarks and registered trademarks are property of the companies that comprise the Syensqo or their respective owners.

© 2024 2023 Syensqo. All rights reserved.

