

Radel® R-5800

Polyphenylsulfone
Solvay Specialty Polymers

Message:

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).

Natural/Transparent: Radel® R-5800 NT

Additional Made-to-Order Colors Available

General Information	
UL YellowCard	E36098-628751
Features	Acid Resistant
	Autoclave Sterilizable
	Base Resistant
	Biocompatible
	E-beam Sterilizable
	Ethylene Oxide Sterilizable
	Flame Retardant
	Good Chemical Resistance
	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		
Appearance	Clear Amber Colors Available		
Forms	Pellets		
Processing Method	Extrusion Injection Molding Sheet Extrusion Thermoforming		
Multi-Point Data	Viscosity vs. Shear Rate (ISO 11403-2)		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.29	g/cm ³	ASTM D792
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
Water Absorption			ASTM D570
24 hr	0.37	%	
Equilibrium	1.1	%	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (3.18 mm)	2340	MPa	ASTM D638
Tensile Strength (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)	2410	MPa	ASTM D790
Flexural Strength (5.0% Strain, 3.18 mm)	91.0	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (3.18 mm)	690	J/m	ASTM D256
Tensile Impact Strength (3.18 mm)	399	kJ/m ²	ASTM D1822
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed, 3.18 mm)	207	°C	ASTM D648
Glass Transition Temperature ¹	220	°C	DSC
CLTE - Flow (3.18 mm)	5.6E-5	cm/cm/°C	ASTM D696
Electrical	Nominal 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	Nominal Value	Unit	Test Method
Flame Rating ² (0.762 mm)	V-0		UL 94
Optical	Nominal Value		Test Method
Refractive Index	1.672		ASTM D542
Additional Information	Nominal Value	Unit	
Steam Sterilization - w/ Morpholine ³	> 1000	Cycles	
Injection	Nominal Value	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	Nominal Value	Unit	
Drying Temperature	171	°C	
Drying Time	4.0	hr	
NOTE			

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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