Radel® R-5500

Polyphenylsulfone

Solvay Specialty Polymers

Message:

Radel® R-5500 is a general purpose extrusion grade of polyphenylsulfone (PPSU), offering exceptional hydrolytic stability and better toughness than most commercially available high-temperature polymers. This resin has a high heat deflection temperature, excellent thermal stability, outstanding resistance to environmental stress cracking, good electrical properties and inherent flame retardant properties. Transparent and opaque colors are available.
Transparent Grades:
Natural: Radel® R-5500 NT
Opaque Grades:
Black: Radel® R-5500 BK937
Bone: Radel® R-5500 NT15
Grey: Radel® R-5500 GY1137
Grey: Radel® R-5500 GY1037
Grey: Radel® R-5500 GY874
Red: Radel® R-5500 RD 1018
Orange: Radel® R-5500 OR1145
Yellow: Radel® R-5500 YL1337
Green: Radel® R-5500 GN1007
Blue: Radel® R-5500 BU1027
Violet: Radel® R-5500 VT2582
Brown: Radel® R-5500 BN1164

General Information	
UL YellowCard	E36098-628749
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
	Dental Applications
	Food Service Applications
	Hospital Goods
	Medical Devices
	Medical/Healthcare Applications
	Membranes
	Surgical Instruments
Agency Ratings	ISO 10993
RoHS Compliance	RoHS Compliant
Appearance	Black
	Clear/Transparent
	Colors Available
Forms	Pellets
Processing Method	Blow Molding
	Extrusion
	Film Extrusion
	Injection Molding
	Machining
	Profile Extrusion
	Sheet Extrusion
	Thermoforming

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.29	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (365°C/5.0 kg)	12 to 17	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	220	°C	ASTM E1356
CLTE - Flow (3.18 mm)	5.6E-5	cm/cm/°C	ASTM D696
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity	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 [1] (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 [2]	> 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	
Cylinder Zone 1 Temp.	338 to 388	°C	
Cylinder Zone 2 Temp.	338 to 388	°C	
Cylinder Zone 3 Temp.	338 to 388	°C	
Cylinder Zone 4 Temp.	338 to 388	°C	
Cylinder Zone 5 Temp.	338 to 388	°C	
Adapter Temperature	327 to 371	°C	
Melt Temperature	343 to 399	°C	
Die Temperature	327 to 371	°C	
NOTE			
1.	These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.		

	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-
2.	Additive: Morpholine at 50 ppm

Recommended distributors for this material

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