Radel® R-5500
polyphenylsulfone

Radel® R-5500 is a general-purpose lower 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 Grades:

- Natural Amber: 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 RD1018
- 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

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 • Dental Applications • Food Service Applications • Hospital Goods	• Medical Devices • Medical/Healthcare Applications • Membranes • Surgical Instruments
Agency Ratings	• ISO 10993	
RoHS Compliance	• RoHS Compliant	
Automotive Specifications	• ASTM D6394 SP0311	
Appearance	• Black • Clear/Transparent	• Colors Available
Forms	• Pellets	
Processing Method	• Blow Molding • Extrusion • Film Extrusion • Injection Molding	• Machining • Profile Extrusion • Sheet Extrusion • Thermoforming

Radel® R-5500
polyphenylsulfone

Physical	Typical Value	Unit	Test method
Density / Specific Gravity [1]	1.29		ASTM D792
Melt Mass-Flow Rate (MFR) (365°C/5.0 kg)	14	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	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)	2410	MPa	ASTM D790
Flexural Strength (5.0% Strain, 3.18 mm)	91.0	MPa	ASTM D790

Impact	Typical Value	Unit	Test method
Notched Izod Impact (3.18 mm)	690	J/m	ASTM D256
Tensile Impact Strength (3.18 mm)	399	kJ/m²	ASTM D1822

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	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 [2] (0.76 mm)	V-0		UL 94

Optical	Typical Value	Unit	Test method
Refractive Index	1.672		ASTM D542

Additional Information	Typical Value	Unit
Steam Sterilization - w/ Morpholine [3]	> 1000	Cycles

Radel® R-5500
polyphenylsulfone

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

[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

SYENSQO

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.

© 2026 2023 Syensqo. All rights reserved.