



RADEL® R

R-5500 SERIES

RADEL® R is a Polyphenylsulfone produced by Solvay Advanced Polymers. RADEL® R is in the same performance category as products like Polysulfone and ULTEM® (PEI). RADEL®

R has increased performance versus Polysulfone and ULTEM® in terms of temperature, impact strength and chemical resistance. RADEL® R has exceptional resistance to repeated steam

autoclaving without loss of dimensional stability or physical properties. RADEL® R comes in both opaque and transparent grades. The transparent grade is R-5500 and the opaque grade is R-5100.

- **High tensile strength**
- **Excellent heat resistance**
- **Very high resistance to environmental stress**
- **Great mechanical strength**
- **High dielectric strength and stability**
- **Low dissipation factor**
- **Very good machinability and finishing**
- **Available in opaque and transparent grades**

RADEL® R series products are targeted at a number of industries and applications. The initial target market is the medical industry. RADEL® R is used in applications for surgical tools and instruments because of its resistance to autoclave sterilization damage. A second market for RADEL® R is electronics because of its temperature resistance and dielectric properties.

TYPICAL PROPERTY VALUES

	PROPERTIES	ASTM Test Method	Units	RADEL® R 5500
PHYSICAL	Density	D792	lbs/in ³	0.0466
	Specific Gravity	D792	-	1.29
	Water Absorption, @ 24 hours, 73°F	D570	%	0.37
	@ Saturation, 73°F	D570	%	1.1
MECHANICAL	Tensile Strength @ Yield, 73°F	D638	psi	10,100
	Tensile Modulus	D639	psi	340,000
	Elongation @ Break, 73°F	D638	%	60
	Flexural Strength, 73°F	D790	psi	13,200
	Flexural Modulus, 73°F	D790	psi	350,000
	Compressive Strength	D695	psi	14,350
	Izod Impact Strength, 73°	D256	ft-lb/in	13
	Rockwell Hardness, 73°F	D785	R Scale	R123
	Shure Hardness	-	D Scale	-
	Wear Factor Against Steel, 40 psi, 50 fpm	D3702	in ³ x $\frac{1}{hr}$	-
		-	PV	-
	Static Coefficient of Friction	D3702	-	-
	Dynamic Coefficient of Friction, 40 psi, 50 fpm	D3702	-	-
THERMAL	Heat Deflection Temperature @ 66 psi	D648	°F	428
	@ 264 psi	D648	°F	420
	Coefficient of Linear Thermal Expansion	D696	in/in/°F	1.7
	Maximum Servicing Temperature, Intermittent	-	°F	360
	Long Term	UL746B	°F	-
	Specific Heat	-	BTU/lb-°F	0.27
	Thermal Conductivity	-	-	-
	Vicat Softening Point	-	°F	424
	Melting Point	D2133	°F	-
	Flammability	UL94	-	V-0
ELECTRICAL	Surface Resistivity	D257	Ohm/square	-
	Volume Resistivity	D257	ohm-cm	1 x 10 ¹⁵
	Dielectric Strength	D149	V/mil	360
	Dielectric Constant, @ 60Hz, 73°F, 50% RH	D150	-	3.44
	@ 1MHz	D150	-	-
	@ 20GHz	D150	-	-
	@ 30GHz	D150	-	-
	Dissipation Factor, @ 60Hz, 73°F	D150	-	-

This information is only to assist and advise you on current technical knowledge and is given without obligation or liability. All trade and patent rights should be observed. All rights reserved. Data obtained from injection molded samples. RADEL®R-Solvay Advanced Polymers

MATERIAL AVAILABILITY

Rods: Diameters: 1" to 3-1/2"
Length: 4' and 8'

Primary Specification (Typical) (Resin)

ASTM-D-6394 SP0311

Profiles, tubes, and special sizes are custom-produced on request.



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HEADQUARTERS
365 Meadowlands Boulevard
Washington, Pennsylvania 15301
Telephone: 800-243-3221 *Sales*
800-869-4029 *Technical*
Fax: 724-746-9209
e-mail: sales@ensinger-ind.com

CANADA
Ensinger-Plastifab
8115 Lafrenais Street
Montreal, Quebec H1P 2B1
Telephone: 514-325-9840
Fax: 514-325-5222
Web site: www.plastifab.ca
e-mail: infoprod@plastifab.ca