

## TECHNICAL DATA SHEET

### Radel® (PPSU)

(polyphenylsulfone)

Radel® is a high performance thermoplastic which offers better impact and chemical resistance than polysulfone or polyetherimide (Ultem®). Radel® has exceptional toughness and outstanding hydrolysis resistance when compared to other thermoplastics as measured by steam autoclaving cycles to failure. Because Radel® has the ability to withstand a virtually unlimited number of steam sterilizations; it typically is used for medical devices without loss of dimensional stability or physical properties. Radel® also resists common acids and bases—including commercial washing solutions—over a broad temperature range. Its heat deflection temperature is 405° F. Radel® is FDA, USDA and USP Class VI compliant.

#### TYPICAL PROPERTIES of RADEL® A POLYPHENYLSULFONE

ASTM or UL test	Property	unfilled (A-300)	30% glass filled (AG-330)
<b>PHYSICAL</b>			
D792	Density (lb/in <sup>3</sup> ) (g/cm <sup>3</sup> )	0.050 1.37	0.057 1.58
D570	Water Absorption, 24 hrs (%)	0.54	0.39
<b>MECHANICAL</b>			
D638	Tensile Strength (psi)	12,200	18,900
D638	Tensile Modulus (psi)	385,000	825,000
D638	Tensile Elongation at Yield (%)	6.5	1.9
D790	Flexural Strength (psi)	16,100	23,500
D790	Flexural Modulus (psi)	420,000	950,000
D695	Compressive Strength (psi)	14,500	25,600
D695	Compressive Modulus (psi)	388,000	1,119,000
D785	Hardness, Rockwell	M88/R127	M80/R124
D256	IZOD Notched Impact (ft-lb/in)	1.6	1.4
<b>THERMAL</b>			
D696	Coefficient of Linear Thermal Expansion (x 10 <sup>-5</sup> in./in./°F)	2.7	1.7
D648	Heat Deflection Temp (°F / °C) at 264 psi	400 / 204	420 / 215
D3418	Melting Temp (°F / °C)	- / -	- / -
-	Max Operating Temp (°F / °C)	320 / 160	320 / 160
C177	Thermal Conductivity (BTU-in/ft <sup>2</sup> -hr-°F) (x 10 <sup>-4</sup> cal/cm-sec-°C)	1.13 3.89	1.35 4.65
UL94	Flammability Rating	V0	V0
<b>ELECTRICAL</b>			
D149	Dielectric Strength (V/mil) short time, 1/8" thick	380	440
D150	Dielectric Constant at 1 KHz	3.5	4.1
D150	Dissipation Factor at 1 KHz	0.0022	0.0018
D257	Volume Resistivity (ohm-cm) at 50% RH	1.7 x 10 <sup>15</sup>	> 10 <sup>16</sup>

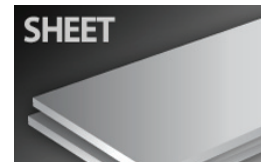
#### Benefits

- High HDT of 207°C (405°F)
- Toughness and impact strength
- Exceptional long-term hydrolytic stability
- Chemical resistance
- Withstands steam sterilization without any significant loss of properties
- Inherently flame retardant
- Transparent

#### Applications

- Sterilization cases and trays
- Dental and surgical instruments
- Medical devices
- Aircraft interiors
- Airline catering trolleys
- Hot water fittings

#### SHAPES AVAILABLE



#### SEE NEXT PAGE FOR ADDITIONAL INFORMATION

RADEL and UDEL are registered trademarks of Solvay Advanced Polymers.  
ULTEM is a registered trademark of SABIC Innovative Polymers (formerly GE Plastics).

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.  
All values at 73°F (23°C) unless otherwise noted.



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