



## Radel R (PPSU)

### Polyphenylsulfone, unfilled, extruded

| Physical Properties                         | Metric   | English  | Comments                      |
|---|--|--|-------------------------------|
| Specific Gravity                            | 1.29 g/cc  | 0.0466 lb/in <sup>3</sup>                                  | ASTM D792                     |
| Water Absorption                            | 0.37 %   | 0.37 %   | Immersion, 24hr; ASTM D570(2) |
| Water Absorption at Saturation              | 1.1 %  | 1.1 %  | Immersion; ASTM D570 (2)      |
| <b>Mechanical Properties</b>                |  |  |                               |
| Hardness, Rockwell M                        | 80   | 80   | ASTM D785                     |
| Hardness, Rockwell R                        | 120  | 120  | ASTM D785                     |
| Hardness, Shore D                           | 80   | 80   | ASTM D2240                    |
| Tensile Strength, Ultimate                  | 75.8 MPa   | 11000 psi  | ASTM D638                     |
| Elongation at Break                         | 30 %   | 30 %   | ASTM D638                     |
| Tensile Modulus                             | 2.34 GPa   | 340 ksi  | ASTM D638                     |
| Flexural Modulus                            | 2.38 GPa   | 345 ksi  | ASTM D790                     |
| Flexural Yield Strength                     | 107 MPa  | 15500 psi  | ASTM D790                     |
| Compressive Strength                        | 92.4 MPa   | 13400 psi  | 10% Def.; ASTM D695           |
| Compressive Modulus                         | 1.93 GPa   | 280 ksi  | ASTM D695                     |
| Shear Strength                              | 62.1 MPa   | 9000 psi   | ASTM D732                     |
| K (wear) Factor                             | Min 2010 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M | Min 1000 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr | QTM 55010                     |
| Izod Impact, Notched                        | 1.33 J/cm  | 2.5 ft-lb/in   | ASTM D256 Type A              |
| <b>Electrical Properties</b>                |  |  |                               |
| Surface Resistivity per Square              | Min 1e+013 ohm                                   | Min 1e+013 ohm   | EOS/ESD S11.11                |
| Dielectric Constant                         | 3.44   | 3.44   | 1MHz; ASTM D150               |
| Dielectric Strength                         | 14.2 kV/mm                                       | 360 V/mil  | Short Term; ASTM D149         |
| Dissipation Factor                          | 0.0017   | 0.0017   | 1MHz; ASTM D150               |
| <b>Thermal Properties</b>                   |  |  |                               |
| CTE, linear 68°F                            | 55.8 µm/m-°C                                     | 31 µin/in-°F   | (-40°F to 300°F); ASTM E831   |
| Thermal Conductivity                        | 0.346 W/m-K                                      | 2.4 BTU-in/hr-ft <sup>2</sup> -°F                          | ASTM F433                     |
| Maximum Service Temperature, Air            | 149 °C   | 300 °F   | Long Term                     |
| Deflection Temperature at 1.8 MPa (264 psi) | 207 °C   | 405 °F   | ASTM D648                     |
| Glass Temperature                           | 220 °C   | 428 °F   | ASTM D3418                    |
| Flammability, UL94 (Estimated Rating)       | V-0  | V-0  | 1/8 inch                      |
| <b>Qualitative Processing Properties</b>    |  |  |                               |
| Compliance - FDA                            | Compliant  |  |                               |
| Machinability                               | 3  | 1-10, 1=Easier to Machine                                  |                               |
| Service in Alcohols                         | Limited  |  |                               |
| Service in Aliphatic Hydrocarbons           | Acceptable                                       |  |                               |
| Service in Aromatic Hydrocarbons            | Limited  |  |                               |
| Service in Chlorinated Solvents             | Unacceptable                                     |  |                               |
| Service in Ethers                           | Limited  |  |                               |
| Service in Ketones                          | Unacceptable                                     |  |                               |
| Service in Strong Acids                     | Limited  |  |                               |
| Service in Strong Alkalies                  | Acceptable                                       |  |                               |
| Service in Sunlight                         | Limited  |  |                               |
| Service in Weak Acids                       | Acceptable                                       |  |                               |
| Service in Weak Alkalies                    | Acceptable                                       |  |                               |

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