

R-5900, R-5900 MR

Radel R-5900 and R-5900 MR polyphenylsulfone resins offer exceptional hydrolytic stability and toughness that is superior to that of other commercially available, high-temperature engineering resins. They offer high deflection temperatures and outstanding resistance to environmental stress cracking. The resins are inherently flame retardant and have excellent thermal stability and good electrical properties.

In addition to their outstanding engineering properties, these resins also offer relatively low melt viscosities for high flow lengths and greater injection molding ease.

Radel R-5900 MR is an internally lubricated grade, which offers enhanced mold release. This feature yields the benefits of shorter cycle times and lower injection pressures. Radel R-5900 MR is particularly well suited for applications where design constraints dictate thin walls, tight tolerances and minimal draft angles.

In their unpigmented state, these resins are transparent with an amber color. These resins process readily using conventional equipment and methods.

Typical Properties of Radel R-5900 and R-5900 MR Resins

Property	ASTM Test Method	Typical Values ⁽¹⁾			
		U.S. Customary Units		SI Units	
		Value	Units	Value	Units
Mechanical					
Tensile Strength	D 638	10.2	kpsi	70	MPa
Tensile Modulus	D 638	340	kpsi	2.3	GPa
Tensile Elongation at yield	D 638	7.2	%	7.2	%
Tensile Elongation at break	D 638	60-120	%	60-120	%
Flexural Strength ⁽²⁾	D 790	14.5	kpsi	100	MPa
Flexural Modulus	D 790	340	kpsi	2.3	GPa
Izod Impact, Notched	D 256	13	ft-lb/in	690	J/m
Thermal					
Deflection Temperature at 264 psi (1.82 MPa)	D 648	405	°F	207	°C
Coefficient of Thermal Expansion	D 696	31	ppm/°F	56	ppm/°C
Glass Transition Temperature ⁽³⁾		428	°F	220	°C
General and Fabrication					
Specific Gravity	D 792	1.29		1.29	
Water Absorption at 24 hours	D 570	0.37	%	0.37	%
Melt Flow at 689°F (365°C), 5.0 kg	D 1238	30	g/10 min	30	g/10 min
Mold Shrinkage	D 955	0.7	%	0.7	%

⁽¹⁾ Actual properties of individual batches will vary within specification limits. Unless otherwise specified, properties were measured using one-eighth inch (3.2 mm) thick injection molded specimens.

⁽²⁾ at 5% strain

⁽³⁾ Measured by differential scanning calorimetry at a heating rate of 36°F (20°C) per minute.

Drying

Radel R-5900 and R-5900 MR resins must be dried completely prior to melt processing. Incomplete drying will result in defects in the formed part ranging from surface streaks to severe bubbling. However, such parts may be recovered as regrind, since there will be no loss of properties. Pellets can be dried on trays in a circulating air oven or in a hopper dryer.

Recommended drying conditions for injection molding are 300°F (149°C) for 4 hours. For extrusion purposes, more thorough drying is needed. Hopper drying for a minimum of 4 hours at 340°F (171°C) is recommended, desiccated inlet air temperatures up to 360°F (182°C) are usable.

Injection Molding

Radel R-5900 and R-5900 MR resins can be readily injection molded in most screw injection molding machines to close part tolerances. Stock temperature requirements will generally range from 680° to 735°F (360° to 390°C), depending on mold design and the type of equipment being used. A general purpose 2.2:1 compression ratio screw is recommended, with minimum back pressure. Mold temperatures of at least 280°F(138°C) are suggested. For long-flow or thin-walled parts, or where low residual stresses are required use mold temperatures as high as 300° to 325°F (150° to 165°C).

Standard Packaging and Labeling

Radel R-5900 and R-5900 MR resins are packaged in multiwall paper bags containing 25 kg (55.115 pounds) of material. Special packaging can be supplied upon request. Individual packages will be plainly marked with the product number, the color, the lot number, and the net weight.

Product Safety and Emergency Service

For product safety information or a Material Safety Data Sheet on a product of Solvay Advanced Polymers

1 (800) 621-4557

1 (770) 772-8880 outside of U.S.

For information or help in an emergency such as a spill, leak, fire or explosion, call day or night:

Emergency Health Information

1 (800) 621-4590

1 (770) 772-5177 outside of U.S.

Emergency Spill Information

CHEMTREC 1 (800) 424-9300

**1 (703) 527-3887 outside of U.S.
collect calls accepted**

For Additional Information

Technical Service

1 (800) 621-4557

Customer Service

1 (800) 848-9744

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