

P-1800

Udel grade P-1800 is a powdered grade of polysulfone with molecular weight similar to that of Udel P-1700 polysulfone. It is well suited for the fabrication of porous membranes that can be made into hollow fibers, tubes, plates, or spiral wound elements. These membranes are used in a variety of filtration applications, such as treating potable or waste water, purifying pharmaceuticals, separating gases, and processing blood or dairy and food products.

This resin is soluble in commercially available, water-miscible, dipolar, aprotic solvents, like dimethylacetamide (DMAC), dimethylformamide (DMF), and N-methyl pyrrolidone (NMP). This material offers membrane producers very good control of pore size and pore size

distribution, high membrane strength, and good film-forming properties.

The resultant membranes have excellent hydrolytic stability and are compatible with pH's ranging from 2 to 13. They tolerate a variety of cleaning methods, including hydrochloric acid or sodium hydroxide. The resin has a Tg of 185°C indicating high thermal resistance.

Typical Properties of Udel P-1800 Resin

Properties	ASTM Test Method	Typical Values ⁽¹⁾			
		U.S. Customary units		SI units	
		Value	Units	Value	Units
General					
Specific Gravity	D 792	1.24		1.24	
Water Absorption, 24 hours	D 570	0.30	%	0.30	%
Melt Flow, 343°C, 2.16 kg	D 1238	6.5	g/10 min	6.5	g/10 min
Mold Shrinkage	D 955	0.007	in/in	0.007	mm/mm
Mechanical					
Tensile Strength	D 638	10.2	kpsi	70.3	MPa
Tensile Modulus	D 638	360	kpsi	2.48	GPa
Tensile Elongation at Break	D 638	50-100	%	50-100	%
Flexural Strength	D 790	15.4	kpsi	106.2	MPa
Flexural Modulus	D 790	390	kpsi	2.69	GPa
Tensile Impact Strength	D 1822	200	ft-lb/in ²	420	kJ/m ²
Impact Strength- Notched Izod	D 256	1.3	ft-lb/in	69	J/m
Thermal					
Deflection Temperature at 264 psi (1.8 MPa)	D 648	345	°F	174	°C
Coefficient of Thermal Expansion	D 696	31	ppm/°F	56	ppm/°C
Electrical					
Dielectric Strength	D 149	425	V/mil	17	kV/mm
Dielectric Constant @ 60 Hz	D 150	3.15		3.15	
Dielectric Constant @ 10 ³ Hz		3.14		3.14	
Dielectric Constant @ 10 ⁶ Hz		3.10		3.10	
Dissipation Factor @ 60 Hz	D 150	0.0011		0.0011	
Dissipation Factor @ 10 ³ Hz		0.0013		0.0013	
Dissipation Factor @ 10 ⁶ Hz		0.0050		0.0050	
Volume Resistivity	D 257	5 x 10 ¹⁶	ohm-cm	5 x 10 ¹⁶	ohm-cm

⁽¹⁾ Actual properties of individual batches will vary within specification limits.

Udel P-1800

Drying

Udel P-1800 polysulfones may be dried before preparing solutions. Pellets can be dried in a circulating hot air oven, by spreading the pellets on trays to a 1-2 inch depth and drying for 3.5 hours at 275° to 325°F (135° to 163°C).

Solution Processing

Udel P-1800 resin can be dissolved in dipolar aprotic solvents such as DMF, DMAC, and NMP.

The resulting viscous solutions can then be used in the production of coatings, films, and membranes. Additives, such as polyvinyl pyrrolidone, polyethylene glycol, and butanol can be easily incorporated into these solutions.

Standard Packaging and Labeling

Udel P-1800 polysulfone resin is packaged in multiwall paper bags containing 55.115 pounds (25 kg) 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

Udel is a registered trademark of Solvay Advanced Polymers, L.L.C.

To our actual knowledge, the information contained herein is accurate as of the date of this document. However, neither Solvay Advanced Polymers, LLC 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 information or its use. This information is 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. The user alone must finally determine suitability of any information or material for any contemplated use, the manner of use and whether any patents are infringed. This information gives typical properties only and is not to be used for specification purposes. Solvay Advanced Polymers, LLC reserves the right to make additions, deletions, or modifications to the information at any time without prior notification.