

## P-1700 NT LCD

Udel P-1700 NT LCD polysulfone is especially well suited for the fabrication of porous membranes for filtration applications. The membranes are usually in the form of hollow fibers, but tube, plate, or spiral wound forms are also used. The membranes are used in a variety of applications, such as potable water treatment, waste water treatment, blood processing, pharmaceutical purification, gas separation, dairy product processing, and for processing a variety of food products.

This resin offers the membrane producer good solubility in commercially available dipolar aprotic solvents, such as dimethylacetamide (DMAC), dimethylformamide, (DMF) and N-methyl pyrrolidone (NMP), which are completely miscible in water, very good control of pore size and pore size distribution, high membrane strength, and good film-forming properties.

Typical grades of polysulfone contain a cyclic dimer that can precipitate from solution, plugging the process filters and limiting the life of the dope solutions. Udel P-1700 NT LCD is specially manufactured to have a lower amount of cyclic dimer. It also has a higher number average molecular weight ( $M_n$ ) for a given weight average molecular weight ( $M_w$ ) leading to higher fiber strength, which means fewer fiber breakages, fewer surface defects and lower rejects.

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-1700 NT LCD Resin

Properties	ASTM Test Method	Typical Values <sup>(1)</sup>			
		U.S. Customary units		SI units	
		Value	Units	Value	Units
<b>General</b>					
Specific Gravity	D 792	1.24		1.24	
Water Absorption, 24 hours	D 570	0.30	%	0.30	%
Melt Flow at 650°F (343°C)	D 1238	6.5	g/10 min	6.5	g/10 min
Mold Shrinkage	D 955	0.007	in/in	0.007	mm/mm
<b>Mechanical</b>					
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 <sup>2</sup>	420	kJ/m <sup>2</sup>
Impact Strength- Notched Izod	D 256	1.3	ft-lb/in	69	J/m
<b>Thermal</b>					
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
<b>Electrical</b>					
Dielectric Strength	D 149	425	V/mil	17	kV/mm
Dielectric Constant @ 60 Hz	D 150	3.03		3.03	
Dielectric Constant @ 10 <sup>3</sup> Hz		3.04		3.04	
Dielectric Constant @ 10 <sup>6</sup> Hz		3.02		3.02	
Dissipation Factor @ 60 Hz	D 150	0.0011		0.0011	
Dissipation Factor @ 10 <sup>3</sup> Hz		0.0013		0.0013	
Dissipation Factor @ 10 <sup>6</sup> Hz		0.0050		0.0050	
Volume Resistivity	D 257	5 x 10 <sup>16</sup>	ohm-cm	5 x 10 <sup>16</sup>	ohm-cm

<sup>(1)</sup> Actual properties of individual batches will vary within specification limits.

## Udel P-1700 NT LCD

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### Drying

Udel P-1700 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-1700 NT LCD 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-1700 NT LCD 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**

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