

Solvay Specialty Polymers Udel® P-3500 LCD MB Polysulfone (PSU) (Unverified Data**)

Category : Polymer , Thermoplastic , Polysulfone (PSU)

Material Notes:

Udel polysulfone is a tough, rigid, high-strength thermoplastic with outstanding hydrolytic resistance. Udel P-3500 LCD MB series polymers are particularly well suited for the fabrication of porous hollow fiber and flat sheet membranes using a solvent-based process. These high molecular weight polymers are used in a variety of membrane filtration applications, such as renal dialysis, water treatment, bio-processing, food and beverage processing, and industrial gas separation. Udel polysulfone polymers possess a number of attributes that are valued by the membrane industry, including excellent mechanical properties, stability at pH levels from 2-13, excellent resistance to caustic and good resistance to moderate concentrations of chlorine. They feature low levels of extractible and insoluble materials making them suitable for drinking water and food contact uses. They may be sterilized using steam, ethylene oxide and e-beam radiation. Udel P-3500 LCD MB series polymers are available in various narrow molecular weight range grades, as shown below. Each grade features reduced levels of cyclic dimer compared to the previous grade, P-3500 NT 11. This can be important in solution processing applications such as membrane production, as it leads to improved dope solution stability and reduced equipment fouling. The Udel P-3500 LCD MB series polymers are soluble in commercially available, water-miscible, dipolar, aprotic solvents, such as dimethylacetamide (DMAC), dimethylformamide (DMF), and N-methylpyrrolidone (NMP). These materials offer membrane producers very good control of pore size and pore size distribution, high membrane strength, and good film-forming properties. Injection Notes: UDEL P-3500 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 257 to 325°F (135 to 163°C). Information provided by Solvay Specialty Polymers.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Udel-P-3500-LCD-MB-Polysulfone-PSU-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.24 g/cc	1.24 g/cc	ASTM D792
Water Absorption	0.30 %	0.30 %	ASTM D570
	@Time 86400 sec	@Time 24.0 hour	
Viscosity	2000 - 2800 cP	2000 - 2800 cP	P-3500 LCD MB7; 25 wt% polymer solution in DMAc
	@Shear Rate 30.0 1/s, Temperature 40.0 °C	@Shear Rate 30.0 1/s, Temperature 104 °F	
	2200 - 3000 cP	2200 - 3000 cP	
Molecular Weight	@Shear Rate 30.0 1/s, Temperature 40.0 °C	@Shear Rate 30.0 1/s, Temperature 104 °F	P-3500 LCD MB3; 25 wt% polymer solution in DMAc
	2400 - 3200 cP	2400 - 3200 cP	
	@Shear Rate 30.0 1/s, Temperature 40.0 °C	@Shear Rate 30.0 1/s, Temperature 104 °F	
Molecular Weight	77000 - 83000 g/mol	77000 - 83000 g/mol	P-3500 LCD MB7
	78000 - 84000 g/mol	78000 - 84000 g/mol	P-3500 LCD MB3

Physical Properties	Metric	English	Comments
	30000 - 86000 g/mol	50000 - 86000 g/mol	P-3500T LCD MB8

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	70.3 MPa	10200 psi	ASTM D638
Elongation at Break	50 - 100 %	50 - 100 %	ASTM D638
Tensile Modulus	2.48 GPa	360 ksi	ASTM D638
Flexural Strength	106 MPa	15400 psi	ASTM D790
Flexural Modulus	2.69 GPa	390 ksi	ASTM D790
Izod Impact, Notched	0.690 J/cm	1.29 ft-lb/in	ASTM D256
Tensile Impact Strength	420 kJ/m ²	200 ft-lb/in ²	ASTM D1822

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	56.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	31.1 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	ASTM D696
Deflection Temperature at 1.8 MPa (264 psi)	174 $^\circ\text{C}$	345 $^\circ\text{F}$	Unannealed; ASTM D648

Electrical Properties	Metric	English	Comments
Volume Resistivity	3.00e+16 ohm-cm	3.00e+16 ohm-cm	ASTM D257
Dielectric Constant	3.02	3.02	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.03	3.03	
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	ASTM D150
	3.04	3.04	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	17.0 kV/mm	432 kV/in	ASTM D149
Dissipation Factor	0.0010	0.0010	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.0060	0.0060	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.0070	0.0070	ASTM D150

Electrical Properties	@Frequency 60.0 Hz Metric	@Frequency 60.0 Hz English	Comments
Processing Properties	Metric	English	Comments
Zone 1	302 °C	576 °F	
Zone 5	316 - 338 °C	601 - 640 °F	
Melt Temperature	316 - 371 °C	601 - 700 °F	
Drying Temperature	135 - 163 °C	275 - 325 °F	
Dry Time	3.50 hour	3.50 hour	

Descriptive Properties	Value	Comments
Agency Ratings	FDA 21 CFR 177.1655	
	NSF Unspecified Rating	
Appearance	Natural Color	
Availability	Asia Pacific	
	Europe	
	North America	
	South America	
Features	Acid Resistant	
	Alcohol Resistant	
	Alkali Resistant	
	Good Chemical Resistance	
	Good Toughness	
	High Heat Resistance	
	Hydrocarbon Resistant	
	Hydrolytically Stable	
Forms	Pellets	
Generic	PSU	
Processing Method	Cast Film	
	Injection Molding	

Descriptive Properties	Solution Processing Value	Comments
RoHS Compliance	RoHS Compliant	
Uses	Membranes	

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