

Udel[®] P-1700 polysulfone

Udel® P-1700 polysulfone (PSU) is a tough, rigid, high-strength thermoplastics suitable for continuous use up to 300°F (149°C). It is resistant to oxidation and hydrolysis and withstand prolonged exposure to high temperatures and repeated sterilization. Udel® P-1700 polysulfone is highly resistant to mineral acids, alkali and salt solutions. Resistance to detergents and hydrocarbon oils is good, but the resin may be attacked by polar solvents such as ketones, chlorinated hydrocarbons and aromatic hydrocarbons.

These resins are also highly resistant to degradation by gamma or electron beam radiation. Electrical properties of Udel® P-1700 polysulfones are stable over a wide temperature range and after immersion in water or exposure to high humidity. The resins comply with FDA 21 CFR 177.1655 and may be used in articles intended for repeated use in contact with foods. Additionally, they are approved by the NSF, by the Department of Agriculture for contact with meat and poultry and by the 3-A Sanitary Standards of the Dairy Association.

- Transparent: Udel® P-1700 CL 2611 CMP
- Transparent: Udel® P-1700 CL 2611 CMP MR
- Transparent: Udel[®] P-1700 NT 06
- Transparent: Udel® P-1700 NT 11
- Transparent: Udel® P-1700 NT 11 MR
- Opaque Black : Udel® P-1700 BK 937
- Opaque White: Udel® P-1700 WH 6417
- Opaque White: Udel® P-1700 WH 7407
- Opaque Gray: Udel® P-1700 GY 8057

Conoral
General

Material Status	Commercial: Active	
Availability	Asia PacificEurope	Latin AmericaNorth America
Features	 Acid Resistant Alcohol Resistant Alkali Resistant Autoclave Sterilizable Biocompatible Chemical Resistant Detergent Resistant E-beam Sterilizable Ethylene Oxide Sterilizable Food Contact Acceptable Good Dimensional Stability Good Sterilizability 	 Good Surface Finish Good Toughness Heat Sterilizable High Heat Resistance Hydrocarbon Resistant Hydrolytically Stable Radiation (Gamma) Resistant Radiation Sterilizable Radiotranslucent Steam Resistant Steam Sterilizable
Uses	 Appliance Components Appliances Automotive Electronics Dental Applications Electrical Parts Electrical/Electronic Applications Food Service Applications Hospital Goods 	 Industrial Parts Medical Devices Medical/Healthcare Applications Microwave Cookware Piping Plumbing Parts Surgical Instruments Valves/Valve Parts

General

Agency Ratings	FDA 21 CFR 177.1655ISO 10993	 NSF STD-51¹ NSF STD-61²
RoHS Compliance	RoHS Compliant	
Automotive Specifications	• ASTM D6394 SP0112 ³	• BMW GS 93016
Appearance	Colors Available	 Transparent - Slight Yellow
Forms	Pellets	
Processing Method	 Extrusion Extrusion Blow Molding Film Extrusion Injection Blow Molding Injection Molding 	 Machining Pipe Extrusion Profile Extrusion Sheet Extrusion Thermoforming

Physical	Typical Value Unit	Test method
Density / Specific Gravity	1.24	ASTM D792
Melt Mass-Flow Rate (MFR) (343°C/2.16 kg)	7.0 g/10 min	ASTM D1238
Molding Shrinkage - Flow	0.70 %	ASTM D955
Water Absorption (24 hr)	0.30 %	ASTM D570

Mechanical	Typical Value Unit	Test method
Tensile Modulus	2480 MPa	ASTM D638
Tensile Strength	70.3 MPa	ASTM D638
Tensile Elongation (Break)	50 to 100 %	ASTM D638
Flexural Modulus	2690 MPa	ASTM D790
Flexural Strength	106 MPa	ASTM D790

Impact	Typical Value Unit	Test method
Notched Izod Impact	69 J/m	ASTM D256
Tensile Impact Strength	420 kJ/m²	ASTM D1822

Thermal	Typical Value Unit	Test method
Deflection Temperature Under Load		ASTM D648
1.8 MPa, Unannealed	174 °C	
CLTE - Flow	5.6E-5 cm/cm/°C	ASTM D696

Electrical	Typical Value Unit	Test method
Volume Resistivity	3.0E+16 ohms·cm	ASTM D257
Dielectric Strength	17 kV/mm	ASTM D149
Dielectric Constant		ASTM D150
60 Hz	3.03	
1 kHz	3.04	
1 MHz	3.02	
Dissipation Factor		ASTM D150
60 Hz	7.0E-4	
1 kHz	1.0E-3	
1 MHz	6.0E-3	

Flammability	Typical Value Unit	Test method
Flame Rating		UL 94
1.5 mm, ALL	НВ	
4.5 mm, NC	V-0	
Glow Wire Flammability Index		IEC 60695-2-12
0.8 mm	850 °C	
1.6 to 6.0 mm	960 °C	
Glow Wire Ignition Temperature		IEC 60695-2-13
0.8 mm	875 °C	
1.6 to 6.0 mm	850 °C	

Injection	Typical Value Unit	
Drying Temperature	135 to 163 °C	
Drying Time	3.5 hr	
Suggested Shot Size	50 to 75 %	
Processing (Melt) Temp	329 to 385 °C	
Mold Temperature	121 to 163 °C	

Notes

Typical properties: these are not to be construed as specifications.

¹ Only Udel P-1700 NT 06 and Udel P-1700 NT 11 are NSF 51 listed. Maximum Temperature of Use: 149°C (300°F)

² Only Udel P-1700 NT 11, Udel P-1700 BK 937, Udel P-1700 WH 6417 and Udel P-1700 WH 7407 are NSF 61 listed. Tested at 82 °C (180 °F) (Commercial Hot)

³ Latest version of the standard applies. Note this product also meets the requirements of ASTM F702 (PSU for medical applications).

Udel P1700 NT 11 meets ASTM D6394 SP0110S2 (which is equivalent as well to Mil P 46120B Type I Class 2 as indicated in ASTM D6394)

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