Udel® P-1710
polysulfone

Udel® P-1710 polysulfone (PSU) is a tough, rigid, high-strength thermoplastic that is suitable for continuous use up to 300°F (149°C). The resin is resistant to oxidation and hydrolysis and withstands prolonged exposure to high temperatures and repeated sterilization.

Udel® P-1710 polysulfone is highly resistant to mineral acids, alkali and salt solutions. Its resistance to detergents and hydrocarbon oils is good, but it will be attacked by polar solvents such as ketones, chlorinated hydrocarbons and aromatic hydrocarbons.

The resin is also highly resistant to degradation by gamma or electron beam radiation. Electrical properties are stable over a wide temperature range and after immersion in water or exposure to high humidity.

- Natural: Udel® P-1710 NT 15 (Appearance is Opaque White)

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific • Europe	• Latin America • North America
Features	• Acid Resistant • Alcohol Resistant • Alkali Resistant • Chemical Resistant • Good Dimensional Stability	• Good Toughness • High Heat Resistance • Hydrocarbon Resistant • Hydrolytically Stable
Uses	• Appliance Components • Appliances • Electrical Parts • Electrical/Electronic Applications • Fittings • Food Service Applications	• Industrial Parts • Microwave Cookware • Piping • Plumbing Parts • Valves/Valve Parts
Agency Ratings	• ISO 10993	• NSF STD-61[1]
RoHS Compliance	• RoHS Compliant	
Appearance	• Colors Available	• Opaque
Forms	• Pellets	
Processing Method	• Extrusion • Film Extrusion • Injection Molding	• Pipe Extrusion • Profile Extrusion • Sheet Extrusion

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

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Mechanical	Typical Value	Unit	Test method
Tensile Modulus	2480	MPa	ASTM D638
Tensile Strength (Yield)	70.3	MPa	ASTM D638
Tensile Elongation			ASTM D638
Yield	5.5	%	
Break	50 to 100	%	
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			ASTM D696
Flow	5.7E-5	cm/cm/°C	
Transverse	5.7E-5	cm/cm/°C	

Electrical	Typical Value	Unit	Test method
Volume Resistivity	5.0E+16	ohms·cm	ASTM D257
Dielectric Strength	17	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.15		
1 kHz	3.14		
1 MHz	3.10		
Dissipation Factor			ASTM D150
60 Hz	1.1E-3		
1 kHz	1.3E-3		
1 MHz	5.0E-3		

Flammability	Typical Value	Unit	Test method
Flame Rating			UL 94
1.5 to 3.0 mm, ALL	HB		
4.0 to 6.0 mm, NC	V-0		

Injection	Typical Value	Unit
Drying Temperature - Desiccant Dryer	135 to 163	°C
Drying Time - Desiccant Dryer	2.0 to 4.0	hr
Suggested Max Moisture	< 0.050	%
Processing (Melt) Temp	350 to 380	°C
Mold Temperature	138 to 160	°C
Injection Rate	Slow-Moderate	
Back Pressure	1.50 to 3.00	MPa
Screw Compression Ratio	1.8:1.0 to 2.6:1.0	

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Extrusion	Typical Value	Unit
Drying Temperature	135 to 163	°C
Drying Time	4.0 to 8.0	hr
Suggested Max Moisture	< 0.010	%
Melt Temperature	315 to 370	°C

Notes

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

[1] Tested at 82 °C (180 °F) (Commercial Hot)

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