

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

General

Revised: 10/27/2017

Material Status	Commercial: Active			
Availability	Asia PacificEurope	Latin AmericaNorth America		
Features	Acid ResistantAlcohol ResistantAlkali ResistantChemical ResistantGood Dimensional Stability	Good ToughnessHigh Heat ResistanceHydrocarbon ResistantHydrolytically Stable		
Uses	 Appliance Components Appliances Electrical Parts Electrical/Electronic Applications Fittings Food Service Applications 	Industrial PartsMicrowave CookwarePipingPlumbing PartsValves/Valve Parts		
Agency Ratings	• ISO 10993	 NSF STD-61¹ 		
RoHS Compliance	 RoHS Compliant 			
Appearance	 Colors Available 	Opaque		
Forms	Pellets			
Processing Method	ExtrusionFilm ExtrusionInjection Molding	Pipe ExtrusionProfile ExtrusionSheet Extrusion		
Physical	Туқ	oical Value Unit	Test method	
Density / Specific Gravity		1.24 ASTM D792		
Melt Mass-Flow Rate (MFR) (34	3°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	Тур	pical 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		

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Tensile Impact Strength 420 kJ/m² AS Thermal Typical Value Unit T Defection Temperature Under Load 174 °C A 1.8 MPa, Unannealed 174 °C A CLTE - Flow 5.6E-5 cm/cm/°C A Electrical Typical Value Unit T Volume Resistivity 5.0E+16 ohms-cm A Dielectric Strength 17 kV/mm A Dielectric Constant A A 60 Hz 3.15 A 1 kHz 3.10 A Dissipation Factor A A 60 Hz 1.1E-3 A 1 kHz 1.3E-3 A 1 MHz 5.0E-3 Flammability Typical Value Unit T Flammability Typical Value Unit T Injection Typical Value Unit Drying Temperature 135 to 163 °C	est method		Typical Value U	Impact
Thermal Typical Value Unit T Deflection Temperature Under Load 1.8 MPa, Unannealed 174 °C CLTE - Flow 5.6E-5 cm/cm/°C A Electrical Typical Value Unit T Volume Resistivity 5.0E+16 ohms·cm A Dielectric Strength 17 kV/mm A Dielectric Constant A 60 Hz 3.15 A 1 kHz 3.14 A 1 MHz 3.10 A Dissipation Factor A A 60 Hz 1.1E-3 A 1 kHz 1.3E-3 A 1 MHz 5.0E-3 A Flammability Typical Value Unit T Flammability Typical Value Unit T Injection Typical Value Unit T Drying Temperature 135 to 163 °C	STM D256		69 .	Notched Izod Impact
Deflection Temperature Under Load 1.8 MPa, Unannealed 174 °C CLTE - Flow 5.6E-5 cm/cm/°C A Electrical Typical Value Unit T Volume Resistivity 5.0E+16 ohms-cm A Dielectric Strength 17 kV/mm A Dielectric Constant A A 60 Hz 3.15 A 1 kHz 3.14 A 1 MHz 3.10 A Dissipation Factor A 60 Hz 1.1E-3 A 1 kHz 1.3E-3 A 1 MHz 5.0E-3 A Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	TM D1822		420 k	Tensile Impact Strength
1.8 MPa, Unannealed 174 °C CLTE - Flow 5.6E-5 cm/cm/°C A Electrical Typical Value Unit T Volume Resistivity 5.0E+16 ohms·cm A Dielectric Strength 17 kV/mm A Dielectric Constant A 60 Hz 3.15 A 1 kHz 3.14 A 1 MHz 3.10 A Dissipation Factor A A 60 Hz 1.1E-3 A 1 kHz 1.3E-3 A 1 MHz 5.0E-3 A Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 A Injection Typical Value Unit T Drying Temperature 135 to 163 °C	est method		Typical Value U	Thermal
CLTE - Flow 5.6E-5 cm/cm/°C A Electrical Typical Value Unit T Volume Resistivity 5.0E+16 ohms-cm A Dielectric Strength 17 kW/mm A Dielectric Constant A A 60 Hz 3.15 A 1 kHz 3.14 A 1 MHz 3.10 A Dissipation Factor A 60 Hz 1.1E-3 A 1 kHz 1.3E-3 A 1 MHz 5.0E-3 A Flammability Typical Value Unit T Flame Rating HB A 1.5 to 4.5 mm HB A V-0 A A Injection Typical Value Unit T Drying Temperature 135 to 163 °C	STM D648			Deflection Temperature Under Load
Electrical Typical Value Unit T Volume Resistivity 5.0E+16 ohms·cm A Dielectric Strength 17 kV/mm A Dielectric Constant A 60 Hz 3.15 A 1 kHz 3.14 A 1 MHz 3.10 A Dissipation Factor A A 60 Hz 1.1E-3 A 1 kHz 1.3E-3 A 1 MHz 5.0E-3 A Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 A Injection Typical Value Unit T Drying Temperature 135 to 163 °C C			174 °	1.8 MPa, Unannealed
Volume Resistivity 5.0E+16 ohms·cm A Dielectric Strength 17 kV/mm A Dielectric Constant A 60 Hz 3.15 3.15 1 kHz 3.14 3.14 1 MHz 3.10 3.10 Dissipation Factor A A 60 Hz 1.1E-3 1.4Hz 1 kHz 1.3E-3 1.4Hz 1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	STM D696	′°C	5.6E-5 d	CLTE - Flow
Dielectric Strength 17 kV/mm A Dielectric Constant 3.15 A 60 Hz 3.15 A 1 kHz 3.14 A 1 MHz 3.10 A Dissipation Factor A A 60 Hz 1.1E-3 A 1 kHz 1.3E-3 A 1 MHz 5.0E-3 A Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 A Injection Typical Value Unit Drying Temperature 135 to 163 °C	est method		Typical Value U	Electrical
Dielectric Constant A 60 Hz 3.15 1 kHz 3.14 1 MHz 3.10 Dissipation Factor A 60 Hz 1.1E-3 1 kHz 1.3E-3 1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	STM D257	m	5.0E+16 c	Volume Resistivity
60 Hz 3.15 1 kHz 3.14 1 MHz 3.10 Dissipation Factor A 60 Hz 1.1E-3 1 kHz 1.3E-3 1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating HB 1.5 to 4.5 mm HB > 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	STM D149		17 k	Dielectric Strength
1 kHz 3.14 1 MHz 3.10 Dissipation Factor A 60 Hz 1.1E-3 1 kHz 1.3E-3 1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	STM D150			Dielectric Constant
1 MHz 3.10 Dissipation Factor A 60 Hz 1.1E-3 1 kHz 1.3E-3 1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 Typical Value Unit Injection Typical Value Unit Drying Temperature 135 to 163 °C			3.15	60 Hz
Dissipation Factor A 60 Hz 1.1E-3 1 kHz 1.3E-3 1 MHz 5.0E-3 Flammability Typical Value Unit Flame Rating 1.5 to 4.5 mm > 4.5 mm HB > 4.5 mm V-0 Injection Drying Temperature 135 to 163 °C			3.14	1 kHz
60 Hz 1.1E-3 1 kHz 1.3E-3 1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C			3.10	1 MHz
1 kHz 1.3E-3 1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating HB 1.5 to 4.5 mm HB > 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	STM D150			Dissipation Factor
1 MHz 5.0E-3 Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C			1.1E-3	60 Hz
Flammability Typical Value Unit T Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C			1.3E-3	1 kHz
Flame Rating 1.5 to 4.5 mm HB > 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C			5.0E-3	1 MHz
1.5 to 4.5 mm HB > 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	est method		Typical Value U	Flammability
> 4.5 mm V-0 Injection Typical Value Unit Drying Temperature 135 to 163 °C	UL 94			Flame Rating
Injection Typical Value Unit Drying Temperature 135 to 163 °C			НВ	1.5 to 4.5 mm
Drying Temperature 135 to 163 °C			V-0	> 4.5 mm
			Typical Value U	Injection
Drying Time 3.5 hr			135 to 163°	Drying Temperature
21,119 11110			3.5 h	Drying Time
Suggested Shot Size 50 to 75 %			50 to 75 9	Suggested Shot Size
Processing (Melt) Temp 329 to 385 °C			329 to 385°	Processing (Melt) Temp
Mold Temperature 121 to 163 °C			121 to 163 °	Mold Temperature

Notes

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

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