

Omnia Plastica PSU Polysulphone

Category : Polymer , Thermoplastic , Polysulfone (PSU)

Material Notes:

It is a non-reinforced amorphous polymer whose main features are its high thermal, electrical and mechanical properties which are typical of a crystalline polymer. Compared to its "brother" PES it has lower thermal properties, although this level is still high when compared to most other engineering plastics. Features: Resistance to high temperature. Resistance to hydrolysis and steam. Mechanical properties : tensile stress, flexural strength, E.modulus Chemical resistance Electrical properties Transparency Weak Point: The cost is higher than conventional engineering plastics. It does not stand UV rays and is therefore not suitable for outdoor applications. Application: Electrical: the very good insulating and dielectric properties make it irreplaceable in many electrical applications: plates for circuits, coils, insulators. Mechanical: it is used for high performance applications such as bearings and precision gears at low as well as high temperatures. Chemical: the use in this field is ideal thanks to its high chemical and thermal resistance. Good resistance to mineral acids, alkali and salt solutions. PSU is attacked by esters, chlorine and aromatic hydrocarbons. Food contact: it is physiologically inert and is therefore used for parts in contact with food, even at high temperature. The excellent chemical properties make it suitable for pump components, flanges, etc. which are in contact with food liquids. Information provided by Omnia Plastica s.p.a. for semifinished products such as sheet, rod, and tube.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Omnia-Plastica-PSU-Polysulphone.php

Physical Properties	Metric	English	Comments
Density	1.24 g/cc	0.0448 lb/in ³	ISO.1183 DIN.53479
Moisture Absorption at Equilibrium	0.30 %	0.30 %	50% relative humidity
Water Absorption at Saturation	0.60 %	0.60 %	23°C

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	69	69	dry sample; ISO2039.2
Ball Indentation Hardness	140 MPa	20300 psi	ISO2039.1 DIN.53456
Tensile Strength at Break	70.0 MPa	10200 psi	ISO.527 DIN.53455
Elongation at Break	>= 50 %	>= 50 %	ISO.527 DIN.53455
Tensile Modulus	2.50 GPa	363 ksi	ISO.527 DIN.53455
Compressive Strength	13.0 MPa	1890 psi	1% strain over 1000 hours; ISO.899 DIN.53444
Charpy Impact Unnotched	NB	NB	7.5 J; ISO.R179 DIN.53453
Charpy Impact, Notched	1.50 J/cm ²	7.14 ft-lb/in ²	ISO179/3C DIN.53453
Coefficient of Friction, Dynamic	0.45	0.45	on dry ground steel; load =0.05MPa; speed =0.6 m/s

Thermal Properties	Metric	English	Comments
CTE, linear	60.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	33.3 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 23.0 - 60.0 $^{\circ}\text{C}$	@Temperature 73.4 - 140 $^{\circ}\text{F}$	
Thermal Conductivity	0.260 W/m-K	1.80 BTU-in/hr-ft ² - $^{\circ}\text{F}$	DIN.52612
Maximum Service Temperature, Air	150 $^{\circ}\text{C}$	302 $^{\circ}\text{F}$	Maximum operating temperature continuously for 5000 hours based on a tensile stress of 50% at 23 $^{\circ}\text{C}$.
	180 $^{\circ}\text{C}$	356 $^{\circ}\text{F}$	short period, no load
Deflection Temperature at 1.8 MPa (264 psi)	174 $^{\circ}\text{C}$	345 $^{\circ}\text{F}$	ISO.75 DIN.53461
Minimum Service Temperature, Air	-50.0 $^{\circ}\text{C}$	-58.0 $^{\circ}\text{F}$	impact conditions and heavy loads not considered
Flammability, UL94	HB	HB	
	@Thickness 3.00 mm	@Thickness 0.118 in	
	V-2	V-2	
	@Thickness 6.00 mm	@Thickness 0.236 in	
Oxygen Index	32 %	32 %	ISO.4589

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.10e+11 ohm-cm	2.10e+11 ohm-cm	ISO.93 DIN.53482
Dielectric Constant	3.1	3.1	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	25.0 kV/mm	635 kV/in	ISO.243 DIN.53481
Dissipation Factor	0.020	0.020	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

Descriptive Properties	Value	Comments
Form	Amorphous	

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