

## Overview of materials for Polysulfone (PSU)

Category : Polymer , Thermoplastic , Polysulfone (PSU)

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polysulfone". Each property range of values reported is minimum and maximum values of appropriate MatWeb entries. The comments report the average value, and number of data points used to calculate the average. The values are not necessarily typical of any specific grade, especially less common values and those that can be most affected by additives or processing methods.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Overview-of-materials-for-Polysulfone-PSU.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polysulfone-PSU.php)

Physical Properties	Metric	English	Comments
Density	1.13 - 1.72 g/cc	0.0408 - 0.0621 lb/in <sup>3</sup>	Average value: 1.37 g/cc Grade Count:195
Filler Content	2.00 - 40.0 %	2.00 - 40.0 %	Average value: 16.5 % Grade Count:40
Water Absorption	0.00300 - 1.70 %	0.00300 - 1.70 %	Average value: 0.348 % Grade Count:98
Moisture Absorption at Equilibrium	0.100 - 0.600 %	0.100 - 0.600 %	Average value: 0.236 % Grade Count:28
Water Absorption at Saturation	0.300 - 1.60 %	0.300 - 1.60 %	Average value: 0.996 % Grade Count:17
Additive Loading	10.0 - 30.0 %	10.0 - 30.0 %	Average value: 16.3 % Grade Count:4
Viscosity Test	63.0 - 81.0 cm <sup>3</sup> /g	63.0 - 81.0 cm <sup>3</sup> /g	Average value: 68.4 cm <sup>3</sup> /g Grade Count:5
Linear Mold Shrinkage	0.0000900 - 0.0130 cm/cm	0.0000900 - 0.0130 in/in	Average value: 0.00459 cm/cm Grade Count:164
Linear Mold Shrinkage, Transverse	0.00250 - 0.0135 cm/cm	0.00250 - 0.0135 in/in	Average value: 0.00644 cm/cm Grade Count:37
Melt Flow	3.00 - 90.0 g/10 min	3.00 - 90.0 g/10 min	Average value: 18.9 g/10 min Grade Count:40

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	68.0 - 92.0	68.0 - 92.0	Average value: 78.5 Grade Count:13
Hardness, Rockwell R	110 - 128	110 - 128	Average value: 122 Grade Count:32
Hardness, Shore D	80.0 - 86.0	80.0 - 86.0	Average value: 81.2 Grade Count:5
Ball Indentation Hardness	115 - 227 MPa	16700 - 32900 psi	Average value: 153 MPa Grade Count:11
Tensile Strength, Ultimate	6.00 - 185 MPa	870 - 26800 psi	Average value: 86.9 MPa Grade Count:161

Mechanical Properties	50.0 - 125 MPa Metric	7250 - 18100 psi English	Comments Average value: 67.6 MPa Grade
	@Temperature 0.000 - 160 °C	@Temperature 32.0 - 320 °F	Count:4
	20.0 - 55.0 MPa	2900 - 7980 psi	Average value: 67.6 MPa Grade
	@Temperature 160 - 160 °C	@Temperature 320 - 320 °F	Count:2
	20.0 - 55.0 MPa	2900 - 7980 psi	Average value: 67.6 MPa Grade
	@Strain 1.00 - 2.00 %	@Strain 1.00 - 2.00 %	Count:2
Tensile Strength, Yield	48.0 - 185 MPa	6960 - 26800 psi	Average value: 87.9 MPa Grade
			Count:54
	40.0 - 68.0 MPa	5800 - 9860 psi	Average value: 55.3 MPa Grade
	@Temperature 60.0 - 140 °C	@Temperature 140 - 284 °F	Count:1
Elongation at Break	0.500 - 110 %	0.500 - 110 %	Average value: 16.5 % Grade
			Count:181
	1.60 - 2.50 %	1.60 - 2.50 %	Average value: 27.9 % Grade
	@Temperature 60.0 - 235 °C	@Temperature 140 - 455 °F	Count:5
Elongation at Yield	0.200 - 10.0 %	0.200 - 10.0 %	Average value: 2.51 % Grade
			Count:39
	2.80 - 4.50 %	2.80 - 4.50 %	Average value: 3.70 % Grade
	@Temperature 60.0 - 150 °C	@Temperature 140 - 302 °F	Count:1
Modulus of Elasticity	1.80 - 35.2 GPa	261 - 5100 ksi	Average value: 5.72 GPa Grade
			Count:175
	1.90 - 9.00 GPa	276 - 1310 ksi	Average value: 7.30 GPa Grade
	@Temperature 50.0 - 200 °C	@Temperature 122 - 392 °F	Count:7
Flexural Yield Strength	71.0 - 255 MPa	10300 - 37000 psi	Average value: 130 MPa Grade
			Count:176
Flexural Modulus	0.103 - 19.3 GPa	14.9 - 2800 ksi	Average value: 5.43 GPa Grade
			Count:176
Compressive Yield Strength	13.0 - 176 MPa	1890 - 25500 psi	Average value: 88.4 MPa Grade
			Count:13
Compressive Modulus	1.73 - 2.59 GPa	251 - 375 ksi	Average value: 2.30 GPa Grade
			Count:3
Shear Modulus	0.0250 - 1.00 GPa	3.63 - 145 ksi	Average value: 0.688 GPa Grade
	@Temperature 50.0 - 225 °C	@Temperature 122 - 437 °F	Count:5
			Average value: 63.4 MPa Grade

Shear Strength Mechanical Properties	62.1 - 68.9 MPa Metric	9000 - 10000 psi English	Count:6 Comments
Secant Modulus	0.0250 - 0.950 GPa @Temperature 50.0 - 200 °C	3.63 - 138 ksi @Temperature 122 - 392 °F	Average value: 0.669 GPa Grade Count:1
Izod Impact, Notched	0.267 - 6.90 J/cm	0.500 - 12.9 ft-lb/in	Average value: 0.806 J/cm Grade Count:159
Izod Impact, Unnotched	2.40 J/cm - NB	4.50 ft-lb/in - NB	Average value: 6.74 J/cm Grade Count:91
Izod Impact, Notched (ISO)	4.00 - 10.0 kJ/m <sup>2</sup>	1.90 - 4.76 ft-lb/in <sup>2</sup>	Average value: 6.84 kJ/m <sup>2</sup> Grade Count:36
	5.00 - 13.0 kJ/m <sup>2</sup> @Temperature -30.0 - 120 °C	2.38 - 6.19 ft-lb/in <sup>2</sup> @Temperature -22.0 - 248 °F	Average value: 7.44 kJ/m <sup>2</sup> Grade Count:6
Izod Impact, Unnotched (ISO)	23.0 kJ/m <sup>2</sup> - NB	10.9 ft-lb/in <sup>2</sup> - NB	Average value: 48.0 kJ/m <sup>2</sup> Grade Count:31
	36.0 - 50.0 kJ/m <sup>2</sup> @Temperature -25.0 - 120 °C	17.1 - 23.8 ft-lb/in <sup>2</sup> @Temperature -13.0 - 248 °F	Average value: 41.3 kJ/m <sup>2</sup> Grade Count:1
Charpy Impact Unnotched	3.00 J/cm <sup>2</sup> - NB	14.3 ft-lb/in <sup>2</sup> - NB	Average value: 3.95 J/cm <sup>2</sup> Grade Count:19
	4.00 J/cm <sup>2</sup> - NB @Temperature -30.0 - - 20.0 °C	19.0 ft-lb/in <sup>2</sup> - NB @Temperature -22.0 - - 4.00 °F	Average value: 4.13 J/cm <sup>2</sup> Grade Count:9
Charpy Impact, Notched	0.350 - 1.50 J/cm <sup>2</sup>	1.67 - 7.14 ft-lb/in <sup>2</sup>	Average value: 0.700 J/cm <sup>2</sup> Grade Count:16
	0.0600 - 0.750 J/cm <sup>2</sup> @Temperature -30.0 - - 20.0 °C	0.286 - 3.57 ft-lb/in <sup>2</sup> @Temperature -22.0 - - 4.00 °F	Average value: 0.489 J/cm <sup>2</sup> Grade Count:8
Tensile Impact Strength	84.1 - 420 kJ/m <sup>2</sup>	40.0 - 200 ft-lb/in <sup>2</sup>	Average value: 330 kJ/m <sup>2</sup> Grade Count:16
Dart Drop, Total Energy	8.00 - 14.0 J	5.90 - 10.3 ft-lb	Average value: 10.9 J Grade Count:7
Coefficient of Friction	0.170 - 0.600	0.170 - 0.600	Average value: 0.364 Grade Count:15
Coefficient of Friction, Static	0.100 - 0.620	0.100 - 0.620	Average value: 0.313 Grade Count:8
Tensile Creep Modulus, 1000 hours	2500 - 8300 MPa	363000 - 1.20e+6 psi	Average value: 4360 MPa Grade Count:5
K (wear) Factor	4.50 - 266 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	2.23 - 132 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	Average value: 75.5 x 10 <sup>&lt;sup&gt;-8&lt;/sup&gt;</sup>

Electrical Properties	Metric	English	Comments
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Electrical Properties	Metric	English	Comments
Surface Resistance	10.0 - 3.00e+16 ohm	10.0 - 3.00e+16 ohm	Average value: 9.09e+14 ohm Grade Count:40
Insulation Resistance	1000 - 1.00e+14 ohm	1000 - 1.00e+14 ohm	Average value: 2.55e+13 ohm Grade Count:4
Static Decay	2.00 sec	2.00 sec	Average value: 2.00 sec Grade Count:4
Dielectric Constant	2.80 - 3.75	2.80 - 3.75	Average value: 3.19 Grade Count:48
Dielectric Strength	12.4 - 130 kV/mm	315 - 3300 kV/in	Average value: 23.5 kV/mm Grade Count:58
Dissipation Factor	0.000700 - 0.0200	0.000700 - 0.0200	Average value: 0.00378 Grade Count:46

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