

## BASF Ultrason S 3010 PSU

Category : Polymer , Thermoplastic , Polysulfone (PSU)

### Material Notes:

Ultrason S 3010 is an unreinforced, higher viscosity injection molding and extrusion PSU grade, tougher and with improved chemical resistance. It conforms to FDA requirements of 21 CFR 177.1655.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_BASF-Ultrason-S-3010-PSU.php](http://www.lookpolymers.com/polymer_BASF-Ultrason-S-3010-PSU.php)

Physical Properties	Metric	English	Comments
Density	1.24 g/cc	0.0448 lb/in <sup>3</sup>	ISO 1183
Water Absorption	0.80 %	0.80 %	ISO 62
Moisture Absorption at Equilibrium	0.30 %	0.30 %	23°C/50% R.H.; ISO 62
Viscosity Test	72 cm <sup>3</sup> /g	72 cm <sup>3</sup> /g	Viscosity number
Linear Mold Shrinkage, Flow	0.0070 cm/cm	0.0070 in/in	ISO 294
Linear Mold Shrinkage, Transverse	0.0074 cm/cm	0.0074 in/in	ISO 294
Melt Flow	40 g/10 min @Load 10.0 kg, Temperature 360 °C	40 g/10 min @Load 22.0 lb, Temperature 680 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	135 MPa	19600 psi	ISO 2039-1
Tensile Strength at Break	75.0 MPa	10900 psi	5mm/min; ISO 527-2
Tensile Stress	20.0 MPa @Strain 1.00 %, Temperature 160 °C	2900 psi @Strain 1.00 %, Temperature 320 °F	ISO 527
	27.0 MPa @Strain 1.00 %, Temperature 23.0 °C	3920 psi @Strain 1.00 %, Temperature 73.4 °F	ISO 527
	35.0 MPa @Strain 2.00 %, Temperature 160 °C	5080 psi @Strain 2.00 %, Temperature 320 °F	ISO 527
	47.0 MPa @Strain 2.00 %, Temperature 23.0 °C	6820 psi @Strain 2.00 %, Temperature 73.4 °F	ISO 527
	70.0 MPa	10200 psi	

Mechanical Properties	Metric	English	Comments
	@Strain 4.00 %, Temperature 23.0 °C	@Strain 4.00 %, Temperature 73.4 °F	
Tensile Strength, Yield	75.0 MPa	10900 psi	50mm/min; ISO 527-2
	40.0 MPa	5800 psi	
	@Temperature 140 °C	@Temperature 284 °F	
	58.0 MPa	8410 psi	
	@Temperature 100 °C	@Temperature 212 °F	
	68.0 MPa	9860 psi	
	@Temperature 60.0 °C	@Temperature 140 °F	
	75.0 MPa	10900 psi	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Elongation at Break	5.7 %	5.7 %	5mm/min; ISO 527-2
Elongation at Yield	5.7 %	5.7 %	50mm/min; ISO 527-2
	0.50 %	0.50 %	
	@Time 3600 sec, Pressure 10.0 MPa	@Time 1.00 hour, Pressure 1450 psi	ISO 899
	0.55 %	0.55 %	
	@Pressure 10.0 MPa, Time 360000 sec	@Pressure 1450 psi, Time 100 hour	ISO 899
	0.56 %	0.56 %	
	@Pressure 10.0 MPa, Time 3.60e+7 sec	@Pressure 1450 psi, Time 10000 hour	ISO 899
	0.80 %	0.80 %	
	@Time 3600 sec, Pressure 20.0 MPa	@Time 1.00 hour, Pressure 2900 psi	ISO 899
	0.90 %	0.90 %	
	@Pressure 20.0 MPa, Time 360000 sec	@Pressure 2900 psi, Time 100 hour	ISO 899
	1.3 %	1.3 %	
	@Time 3600 sec, Pressure 30.0 MPa	@Time 1.00 hour, Pressure 4350 psi	ISO 899
	1.4 %	1.4 %	
	@Pressure 30.0 MPa, Time 360000 sec	@Pressure 4350 psi, Time 100 hour	ISO 899
	1.5 %	1.5 %	

Mechanical Properties	Metric	English	ISO 899 Comments
	@Pressure 30.0 MPa, Time 3.60e+7 sec	@Pressure 4350 psi, Time 10000 hour	
	1.9 %	1.9 %	
	@Time 3600 sec, Pressure 40.0 MPa	@Time 1.00 hour, Pressure 5800 psi	ISO 899
	2.0 %	2.0 %	
	@Pressure 20.0 MPa, Time 3.60e+7 sec	@Pressure 2900 psi, Time 10000 hour	ISO 899
	2.0 %	2.0 %	
	@Pressure 40.0 MPa, Time 360000 sec	@Pressure 5800 psi, Time 100 hour	ISO 899
	2.0 %	2.0 %	
	@Time 3600 sec, Pressure 42.0 MPa	@Time 1.00 hour, Pressure 6090 psi	ISO 899
	2.2 %	2.2 %	
	@Pressure 42.0 MPa, Time 360000 sec	@Pressure 6090 psi, Time 100 hour	ISO 899
	2.4 %	2.4 %	
	@Pressure 40.0 MPa, Time 3.60e+7 sec	@Pressure 5800 psi, Time 10000 hour	ISO 899
	2.5 %	2.5 %	
	@Pressure 42.0 MPa, Time 3.60e+7 sec	@Pressure 6090 psi, Time 10000 hour	ISO 899
Creep Strength	17.0 MPa	2470 psi	in water at 95°C
	@Time 3.60e+7 sec	@Time 10000 hour	
	20.0 MPa	2900 psi	in water at 95°C
	@Time 3.60e+6 sec	@Time 1000 hour	
	25.0 MPa	3630 psi	in water at 95°C
	@Time 360000 sec	@Time 100 hour	
	32.0 MPa	4640 psi	in water at 95°C
	@Time 36000 sec	@Time 10.0 hour	
Modulus of Elasticity	2.00 GPa	290 ksi	ISO 527
	@Temperature 140 °C	@Temperature 284 °F	
	2.30 GPa	334 ksi	ISO 527
	@Temperature 100 °C	@Temperature 212 °F	

Mechanical Properties	2.49 GPa Metric	361 ksi English	Comments
	@Temperature 60.0 °C	@Temperature 140 °F	
	2.51 GPa	364 ksi	ISO 527
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Tensile Modulus	2.60 GPa	377 ksi	ISO 527-2
Fatigue Strength	25.0 MPa	3630 psi	
	@# of Cycles 1.00e+7	@# of Cycles 1.00e+7	
	30.0 MPa	4350 psi	
	@# of Cycles 1.00e+6	@# of Cycles 1.00e+6	
	40.0 MPa	5800 psi	
	@# of Cycles 100000	@# of Cycles 100000	
	50.0 MPa	7250 psi	
	@# of Cycles 10000	@# of Cycles 10000	
Shear Modulus	0.0250 GPa	3.63 ksi	ISO 6721
	@Temperature 200 °C	@Temperature 392 °F	
	0.800 GPa	116 ksi	ISO 6721
	@Temperature 175 °C	@Temperature 347 °F	
	0.900 GPa	131 ksi	ISO 6721
	@Temperature 100 °C	@Temperature 212 °F	
	0.950 GPa	138 ksi	ISO 6721
	@Temperature 50.0 °C	@Temperature 122 °F	
Izod Impact, Notched (ISO)	5.50 kJ/m <sup>2</sup>	2.62 ft-lb/in <sup>2</sup>	ISO 180/A
	5.00 kJ/m <sup>2</sup>	2.38 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature 120 °C	@Temperature 248 °F	
	6.00 kJ/m <sup>2</sup>	2.86 ft-lb/in <sup>2</sup>	ISO 180/A
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	10.0 kJ/m <sup>2</sup>	4.76 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature 50.0 °C	@Temperature 122 °F	
	13.0 kJ/m <sup>2</sup>	6.19 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature -25.0 °C	@Temperature -13.0 °F	
Charpy Impact Unnotched	NB	NB	ISO 179/1eU

Mechanical Properties	Metric	English	Comments
	@Temperature -30.0 °C	@Temperature -22.0 °F	ISO 179/1eU
Charpy Impact, Notched	0.550 J/cm <sup>2</sup>	2.62 ft-lb/in <sup>2</sup>	ISO 179/1eA
	0.600 J/cm <sup>2</sup>	2.86 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Tensile Creep Modulus, 1000 hours	2500 MPa	363000 psi	ISO 899-1

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	53.0 μm/m-°C	29.4 μin/in-°F	ISO 11359-1/-2
	@Temperature 23.0 - 80.0 °C	@Temperature 73.4 - 176 °F	
	60.0 μm/m-°C	33.3 μin/in-°F	ISO 11359-1/-2
	@Temperature 140 - 180 °C	@Temperature 284 - 356 °F	

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+13 ohm-cm	>= 1.00e+13 ohm-cm	IEC 60093
Surface Resistance	>= 1.00e+14 ohm	>= 1.00e+14 ohm	IEC 60093
Dielectric Constant	3.1	3.1	IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
	3.1	3.1	IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	37.0 kV/mm	940 kV/in	IEC 60243-1
Dissipation Factor	0.00080	0.00080	IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
	0.0064	0.0064	IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Comparative Tracking Index	125 V	125 V	Test Liquid A & B; IEC 60112

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