

## Omnia Plastica PE 500 - Polyethylene 500

Category : Polymer , Thermoplastic , Polyethylene (PE)

### Material Notes:

Polyethylene with a molecular weight of  $\pm 500,000$ . PE 500 is more rigid than the high molecular weight polyethylene and it is therefore more suitable for mechanical applications. The friction coefficient is low and machinability is excellent. Features: Chemical: high chemical resistance typical of the polyolefins Shock resistance, good even at low temperature High abrasion resistance Low friction coefficient Low specific gravity Easy machinability Colour: natural Weak Point: Compared to the engineering plastics it has lower thermal and mechanical properties : tensile stress, flexural and compressive strength, etc. Compared to high molecular weight PE, it is more rigid and its resistance to continuous shock is therefore lower Application: Food contact: physiologically inert, it is approved for food contact by the most important standards. Thanks to this feature, it is widely used for components in food machinery, pumps for liquid food etc. Chemical: thanks to the high resistance to acids and alkali it is used to produce components for the chemical industry. Electrical: very good dielectric properties, weatherproof. Mechanical: the low friction coefficient and its non hygroscopicity make it suitable for use as a bearing or for mechanical parts with low loads, even when operating in water. 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-PE-500-Polyethylene-500.php](http://www.lookpolymers.com/polymer_Omnia-Plastica-PE-500-Polyethylene-500.php)

Physical Properties	Metric	English	Comments
Density	0.950 g/cc	0.0343 lb/in <sup>3</sup>	ISO.1183 DIN.53479
Moisture Absorption at Equilibrium	0.00 %	0.00 %	50% relative humidity
Water Absorption at Saturation	0.00 %	0.00 %	23°C

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	60	60	dry sample; ISO2039.2
Ball Indentation Hardness	50.0 MPa	7250 psi	ISO2039.1 DIN.53456
Tensile Strength at Break	26.0 MPa	3770 psi	ISO.527 DIN.53455
Elongation at Break	600 %	600 %	ISO.527 DIN.53455
Tensile Modulus	0.800 GPa	116 ksi	ISO.527 DIN.53455
Compressive Strength	3.00 MPa	435 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	5.00 J/cm <sup>2</sup>	23.8 ft-lb/in <sup>2</sup>	ISO179/3C DIN.53453
Coefficient of Friction, Dynamic	0.32	0.32	on dry ground steel; load =0.05MPa; speed =0.6 m/s

Thermal Properties	Metric	English	Comments
CTE, linear	200 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	111 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 23.0 - 60.0 $^{\circ}\text{C}$	@Temperature 73.4 - 140 $^{\circ}\text{F}$	
Thermal Conductivity	0.400 W/m-K	2.78 BTU-in/hr-ft <sup>2</sup> - $^{\circ}\text{F}$	DIN.52612
Melting Point	130 $^{\circ}\text{C}$	266 $^{\circ}\text{F}$	
Maximum Service Temperature, Air	80.0 $^{\circ}\text{C}$	176 $^{\circ}\text{F}$	Maximum operating temperature continuously for 5000 hours based on a tensile stress of 50% at 23 $^{\circ}\text{C}$ .
	95.0 $^{\circ}\text{C}$	203 $^{\circ}\text{F}$	short period, no load
Deflection Temperature at 1.8 MPa (264 psi)	50.0 $^{\circ}\text{C}$	122 $^{\circ}\text{F}$	ISO.75 DIN.53461
Minimum Service Temperature, Air	-30.0 $^{\circ}\text{C}$	-22.0 $^{\circ}\text{F}$	impact conditions and heavy loads not considered
Flammability, UL94	HB	HB	
Oxygen Index	18 %	18 %	ISO.4589

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+17 ohm-cm	1.00e+17 ohm-cm	ISO.93 DIN.53482
Dielectric Constant	2.3	2.3	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	50.0 kV/mm	1270 kV/in	ISO.243 DIN.53481
Dissipation Factor	0.0040	0.0040	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

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