

## POLYETHYLENE - AFRILENE PE 500



### High Molecular Weight Polyethylene - Molecular weight +/- 500,000 g/mol

General purpose UHMWPE suited to engineered applications where its unique properties of excellent impact strength, wear and abrasion resistance are required.

#### PROPERTIES:

- Mechanical - Good general purpose PE for mechanical parts.
- Light weight - easy to handle without special equipment.
- Physiologically inert - approved for food applications.
- Electrical insulation - it is a good insulator.
- Weatherproof - it doesn't absorb water.
- Chemical resistance - resists corrosive chemicals (e.g. Sulphuric Acid, Caustic Soda).

#### APPLICATIONS:

Gears and Rollers, Starwheels, Machine Parts, Guides and Fixtures, Cutting Boards, Catering Equipment, Processed Food Moulds, Leisure Products



#### DELIVERY PROGRAMME

Sheets, Rods and Finished Components  
Available on request



NATIONAL DISTRIBUTION - STOCK SHAPES 086 1100 420

SPECIALIST ENGINEERING PLASTICS BRANCH  
Tel: +27(11) 568-4000 | Fax: +27 (11) 568-4970  
Email: [eppsales@maizey.co.za](mailto:eppsales@maizey.co.za)

MACHINED COMPONENTS AND INDUSTRIAL  
FABRICATION  
Tel: +27(11) 824-2751 | Fax: +27 (11) 824-1829  
Email: [epp@maizey.co.za](mailto:epp@maizey.co.za)

[www.maizeyep.co.za](http://www.maizeyep.co.za)

AFRILENE PE 500			
PROPERTIES	TEST METHOD	UNIT OF MEASURE	NATURAL/ BLACK
<b>GENERAL</b>			
DENISTY	DIN EN ISO 1183-1	g/cm <sup>3</sup>	0,96
WATER ABSORPTION	DIN EN ISO 62	%	<0.01
FLAMABILITY 3mm	DIN 4102	3mm	B2
FLAMABILITY 6mm	UL 94	6mm	HB
<b>MECHANICAL</b>			
TENSILE STRENGTH	DIN EN ISO 527-1	MPA	27
ELONGATION AT BREAK	DIN EN ISO 527-1	%	>50
E MODULUS	DIN EN ISO 527-1	MPA	1 200
NOTCHED IMPACT STRENGTH (CHARPY)	DIN EN ISO 179-2	kJ/m <sup>2</sup>	NO BREAK
SHORE HARDNESS	DIN EN ISO 868/15sek	SCALE D	65
<b>THERMAL (ISO 11357-3)</b>			
MELTING TEMPERATURE	NOT APPLICABLE	°C	135
THERMAL CONDUCTIVITY	DIN 52612-1	W/(m.K)	0,40
SPECIFIC THERMAL CAPACITY	DIN 52612	kJ/(kg.K)	1,9
COEFFICIENT OF LINEAR THERMAL EXPANSION	DIN 53752	10 <sup>-6</sup> K <sup>-1</sup>	150...230
LONG TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	-100...80
SHORT TERM SERVICE TEMPERATURE (MAX)	GUIDELINE ONLY	°C	100
HEAT DEFLECTION TEMPERATURE	DIN EN ISO 306 VICAT B	°C	79
<b>ELECTRICAL</b>			
DIELECTRIC CONSTANT	IEC 60250	N/A	2,3
DIELECTRIC DISSIPATION FACTOR (10 <sup>6</sup> Hz)	IEC 60250	N/A	0,0002
SPECIFIC VOLUME RESISTIVITY	IEC 60093	Ω.cm	>10 <sup>14</sup>
SURFACE RESISTIVITY	IEC 60093	Ω	>10 <sup>14</sup>
DIELECTRIC STRENGTH	IEC 60243	kV/mm	45

#### When machining thermoplastic stock shapes, remember...

- Thermal expansion is up to 10 times greater with plastics than metals.
- Plastics lose heat more slowly than metals, so avoid localized overheating.
- Softening (and melting) temperatures of plastics are much lower than metals and plastics are much more elastic than metals.

#### Getting started

- Positive tool geometries with ground peripheries are recommended.
- HSS/Tip tooling with polished top surfaces is suggested for optimum tool life and surface finish.
- Use adequate chip clearance to prevent clogging.
- Adequately support the material to restrict deflection away from the cutting tool.

#### Coolants

Coolants are generally not required for most machining operations, but are strongly suggested during drilling operations, especially with notch sensitive materials such as Nylon, PET-P, PAI, PBI and glass or carbon reinforced products.

In addition to minimizing localized part heat-up, coolants prolong tool life. For optimum surface finishes and close tolerances, non-aromatic, water soluble coolants are suggested. General purpose petroleum based cutting fluids, although suitable for many metals and plastics, may contribute to stress cracking of amorphous plastics such as Polycarbonate.

Because of these differences, you may wish to experiment with fixtures, tool materials, angles, speeds and feed rates to obtain optimum results.

#### GENERAL NOTE:

The data shown fall within the normal parameters of product properties. They should only be used as a guide to initial material selection for the relevant application and for material specification limits. Further technical information is available for specific application requirements. When no value is listed, insufficient details were available to present a usable value.