



POLYETHYLENE

Also Known As (common industry trade names):

A/A Drainage Liner . A/A Liner . ARP Cutting Board . CPG Seaboard . Contain . Cream P Duravar . Etheylene . Ethylux . Excelon . HDPE . HMW-PE . IT . King Color Core King Cutting Board . King Cutting Board XL . King Pipegrade . King Starboard King Starboard AS . King Starboard XL . King Starlite XI . LDPE . Lennite . Lineai . MDPE PEPolyflo . Pipe Grade . Polystone Polystone M . Polystone G . Ramex . RAU/LDPE RAU/LLPE . Resinol Type A . Resinol Type F . Sym-Plate . Sanalite . Sanatec . Tivar Tivar 88 . Tivar 88-2 . Tivar 88 Antistatic . Tivar 88-2 Antistatic . Tivar 1000 Tivar 1000 Antistatic . Tivar 1000 UV Resistant Twar Dryslide . Tivar Extended Wear Tivar HOT . Tivar Oilfield . Tivar Polysteel . Tivar Urethane . UHMW-PE . Xylethon

Description:

Polyethylene has long been considered the work horse of thermoplastics. Its chemical inertness coupled with the ease of fabrication and low cost make it an ideal solution for a variety of applications ranging from harsh chemical environments to notebook covers. Polyethylene, the largest volume thermoplastic polymer used today, is available in a wide variety of grades and formulations that have an equally wide range of properties. Some polyethylenes are flexible, others are rigid; some have poor impact strength, others are virtually unbreakable; some have good clarity; others are opaque. Service temperatures can range from -40 to +200F. In general, however, polyethylenes are characterized by toughness, excellent chemical resistance and electrical properties, low coefficient of friction, near-zero moisture absorption, light weight (approximately one-eighth that of steel) and ease of processing.

Polyethylenes are classified into three main categories, according to density: Low, Medium and High. A fourth type, ultra-high-molecular-weight-polyethylene (UHMW-PE), is beyond the high-density range. In some cases, properties of this high-performance plastic are similar to other polyethylenes, but in others cases can be dramatically different. Also available is crosslinked polyethylene, a special grade which, by chemical or irradiation treatment, becomes essentially a thermoset material with outstanding heat resistance and strength.

Classification of Polyethylenes:

Polyethylene is classified into several different categories based mostly on its density and branching. The mechanical properties of PE depend significantly on variables such as the extent and type of branching, the crystal structure, and the molecular weight.

UHMWPE(ultra high molecular weight PE) HMWPE (high molecular weight polyethylene)

HDPE (high density PE) HDXLPE (high density cross-linked PE)

PEX (cross-linked PE) MDPE (medium density PE) LDPE (low density PE)

LLDPE (linear low density PE) VLDPE (very low density PE)

(continued - next page)

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POLYETHYLENE (continued - page 2)

LOW DENSITY POLYETHYLENE (LDPE)

LDPE is noted for its low temperature flexibility, toughness and corrosion resistance. It is not suited for applications where stiffness, high temperature resistance and structural strength are required. The ease of fabrication and a low cost factor make this material the choice for many applications

Characteristics / Enhancements / Varieties: Fillers:

UV Stabilizers Anti-Static Color Pigments Flame Retardant

Applications

Chemical Storage . Containers . Gasketing Material . Work Surfaces .
Thermoformed Products . Orthopedic Braces . Trash Bags . Gallon Milk Jugs
Bleach Bottles . Drop Cloths

Standard Shapes and Sizes (please call for custom sizes not listed):

Sheet: 48"x 96", 48" x 120", 60" & 72"

Rod: From 1/4" thru 10" - Larger available via import

Tube: LD and HD in various sizes - Please call for more details

Film: Thickness: .001" thick thru .010" Widths: .004"x 10' x 100'

HIGH DENSITY POLYETHYLENE (HDPE)

HDPE is well suited for applications where a greater tensile and compression strength is needed. HDPE possesses excellent impact strength and corrosion resistance. It meets FDA requirements for direct food contact and can be sterilized easily in boiling water.

Characteristics / Enhancements / Varieties:

Fillers:

UV Stabilizers Anti-Static Color Pigments Flame Retardant

Applications:

Pipe Flanges . Pipe Fittings . Pipe . Marine . Wear Components . Star Wheels .
Cutting boards Orthopedic Devices . Containment Vessels . Playground Equipment .
Oilfield . Hula Hoops . Chemical Transfer Tubing

Standard Shapes and Sizes (please call for custom sizes not listed):

Sheet: 48"x 96", 48" x 120", 60" & 120"

Rod: From 1/4" thru 10" - Larger available via import

Tube: LD and HD in various sizes - Please call for more details

Film: Thickness: .001" thick thru .010" Widths: .004"x 10' x 100'

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PHYSICAL PROPERTIES

HDPE

SHEETS

Tolerances

Gauges	Both width and length
1/8" - 3/4" +/- 5%	Plus Only
1" - 1-1/2" -5% +10%	
1-3/4" AND OVER +ONLY	

Property	Units	ASTM	Nominal Value*
Density	g/cc	D1505	.955
Tensile Strength @ Yield	p.s.i.	D638	>4100
Elongation @ Break	%	D638	>600
Flexural Modulus	p.s.i.	D790	185,000
Durometer	Shore D	D2240	69
Tensile Impact	ft. lbs./in ²	D1822	115
Brittleness Temp.	°C	D746	<-76
Vicat Softening Temp.	°C	D1525	125
Heat Deflection Temp. 66PSI	°C	D648	73
Co-efficient of Linear Thermal Expansion	in./in./°F	D696	6x10 ⁻⁵

*All values are determined on specimens prepared according to ASTM testing procedures (if applicable). Nominal values should not be interpreted as specifications.



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PHYSICAL PROPERTIES

LDPE

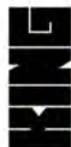
SHEETS, SLABS AND MASSIVE SHAPES

Tolerances

Gauges	Both width and length
1/16" - 3/4" +/- 5%	
1" - 1-1/2" -5% +10%	
1-3/4" AND OVER +ONLY	Plus Only

Property	Units	ASTM	Nominal Value*
Density	g/cc	D1505	0.918
Tensile Strength @ Yield	p.s.i.	D638	>1,400
Elongation @ Break	%	D638	>500
Flexural Modulus	p.s.i.	D790	30,000
Durometer	Shore D	D785	42
Vicat Softening Temp.	°C	D1525	89
Notched Izod Impact	-	D256	No Break
Heat Deflection Temperature at 66 P.S.I.	°C	D648	50

*All values are determined on specimens prepared according to ASTM testing procedures (if applicable). Nominal values should not be interpreted as specifications.



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