LAMINATED PLASTICS
DISTRIBUTORS & FABRICATORS

Connect With Us
Click Here To Request a Quote
Email sales@laminatedplastics.com
Call 1-800-225-5004
Visit laminatedplastics.com

TECHNICAL DATA SHEET
Polyethylene
(PE)

Polyethylenes are semi-crystalline materials with excellent chemical resistance, good fatigue and wear resistance and a wide range of properties. Polyethylenes are easy to distinguish from other plastics because they float in water. Polyethylenes provide good resistance to organic solvents, degreasing agents and electrolytic attack. Polyethylene is used more than any other thermoplastic polymer. There are a wide variety of grades and formulations available that have an equally wide range of properties.

Benefits
Durability Easily fabricated
Chemical resistance
Abrasion resistance
Good electrical properties
Impact resistance
Low coefficient of friction
Moisture resistance

Applications
Packaging
Skid
Plates
Conveyer
Systems
Tanks
Containers
Truck liners

SHAPES AVAILABLE

POLYETHYLENE GRADES
Low Density Polyethylene (LDPE)

This extruded material offers good corrosion resistance and low moisture permeability. It can be used in applications where corrosion resistance is important, but stiffness, high temperature, and structural strength are not. A highly flexible product, LDPE is used widely in orthopaedic products, or where mobility without stress fatigue is desired. LDPE is also frequently used in consumer packaging, bags, bottles, and liners.

Benefits
Lightweight
Formable
Impact Resistant
Good electrical properties
Easily cleaned
Easily Fabricated

Applications
Chemical resistant tank and containers
Food storage containers
Laboratory equipment
Corrosion resistant work surfaces
Vacuum formed end caps and tops
Moisture barrier

POLYETHYLENE GRADES
High Density Polyethylene (HDPE)

Representing the largest portion of the polyethylene applications, HDPE offers excellent impact resistance, light weight, low moisture absorption, and high tensile strength. HDPE is also non-toxic and non-staining and meets FDA and USDA certification for food processing.

Benefits
Abrasion Resistant
High impact resistance
Low coefficient of friction
Abrasion resistant
Scratch and marking resistant
Chemical resistant
Water and moisture resistant

Applications
Food cutting boards
Corrosion resistant covers
Pipe flanges
Radiation shielding
Self-supporting containers
Prosthetic devices

SEE NEXT PAGE FOR ADDITIONAL INFORMATION

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.
All values at 73°F (23°C) unless otherwise noted.

LAMINATED PLASTICS
DISTRIBUTORS & FABRICATORS

Connect With Us
Click Here To Request a Quote
Email sales@laminatedplastics.com
Call 1-800-225-5004
Visit laminatedplastics.com

Ultra High Molecular Weight Polyethylene (UHMW PE)

UHMWPE is light weight (1/8 the weight of steel), high tensile strength, and is easily machined. It is the ideal material for many wear parts in machinery and equipment as well as a superb lining in material handling systems and storage containers. UHMW PE is self-lubricating, shatter resistant, long-wearing, abrasion and corrosion resistant. It meets FDA and USDA acceptance for food and pharmaceutical equipment and is a good performer in applications up to 180 °F (82 °C) or when periodically cleaned with live steam or boiling water to sterilize.

TYPICAL PROPERTIES of POLYETHYLENE

ASTM or UL test	Property	LDPE	HDPE	UHMW
	PHYSICAL			
D792	Density (lb/in³) (g/cm³)	0.033 0.92	0.035 0.96	0.034 0.93
D570	Water Absorption, 24 hrs (%)	<0.01	<0.01	<0.01
	MECHANICAL			
D638	Tensile Strength (psi) at 72°F	1,400	4,600	5,800
D638	Tensile Strength (psi) at 150°F	400	400	400
D638	Tensile Modulus (psi)	57,000	200,000	80,000
D638	Tensile Elongation at Break (%)	100	400	300
D790	Flexural Strength at Yield (psi)	1,500	4,600	3,500
D790	Flexural Modulus (psi)	29,000	174,000	88,000
D695	Compressive Strength (psi)	1,400	4,600	3,000
D695	Compressive Modulus (psi)	54,000	100,000	80,000
D732	Shear Strength (psi)	-	-	3,000
D785	Hardness, Shore D	D45	D69	D62-D66
D256	IZOD Notched Impact (ft-lb/in)	No Break	1.3	No Break
	THERMAL			
D696	Coefficient of Linear Thermal Expansion (x 10^{-5} in./in./°F)	-	6	11
D648	Heat Deflection Temp (°F / °C) at 66 psi at 264 psi	 120 / 48 116 / 46	 170 / 76 176 / 80	 203 / 95 180 / 82
D3418	Approx. Melting Temperature (°F / °C)	244 / 118	260 / 125	275 / 136
-	Max Operating Temp (°F / °C)	160 / 71	180 / 82	180 / 82
C177	Thermal Conductivity (BTU-in/ft²-hr-°F) (x 10^{-4} cal/cm-sec-°C)	 - -	 - -	 2.84 10.0
UL94	Flammability Rating	HB	HB<	HB
	ELECTRICAL			
D149	Dielectric Strength (V/mil) short time, 1/8" thick	460-700	450-500	2300
D150	Dielectric Constant at 1 MHz	2.25-2.30	2.30-2.35	2.30-2.35
D150	Dissipation Factor at 1 kHz	0.0002	0.0002	0.0005
D257	Surface Resistivity (ohm/square) at 50% RH	> 10^{15}	> 10^{15}	> 10^{15}
D495	Arc Resistance (sec)	135-160	200-250	250-350

Benefits

Durability
Easily fabricated
Chemical resistance
Abrasion resistance
Electrical properties
Impact resistance
Low coefficient of friction
Moisture resistance

Applications

Tanks and containers
Food storage containers
Laboratory equipment
Disposable formed products
Surface structures
Vacuum formed end caps and tops
Moisture barrier

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets. All values at 73°F (23°C) unless otherwise noted.