



»» Berm Fabric Specifications

LDPE Fabric (Low Density Polyethylene) Options

Product Properties	60 mil Textured	40 Mil Smooth	40 Mil Textured
Weight	41.5 oz./yd ² (1400g/m ²)	28.6 oz./yd ² (970g/m ²)	27.2 oz./yd ² (922g/m ²)
Thickness	57 mils (1.4 mm)	41 mils (1.0 mm)	42 mils (1.1 mm)
Puncture Resistance	118 lbs (525 N)	89 lbs (396 N)	87 lbs (387 N)
Ball Burst	287 lbs (1300 N)	269 lbs (1200 N)	218 lbs (970 N)
Trap Tear	MD – 183 lbs (814 N) TD – 169 lbs (774 N)	MD – 133 lbs (592 N) TD – 107 lbs (476 N)	MD – 128 lbs (569 N) TD – 111 lbs (494 N)
Hydrostatic Resistance	341 psi (2400 kPa)	233 psi (1600 kPa)	211 psi (1500kPa)
Tensile Property - Break Strength	MD – 512 lbs (2300 N) TD – 512 lbs (2300 N)	MD – 405 lbs (1800 N) TD – 385 lbs (1700 N)	MD – 399 lbs (1800 N) TD – 38 lbs (169 N)
Tensile Property - Elongation	MD – 776% TD – 1006%	MD – 1007% TD – 964%	MD – 945% TD – 893%
Abrasion	>40000 cycles	>40000 cycles	>40000 cycles
Low Working Temp	-106°F / (-77°C)	-106°F / (-77°C)	-106°F / (-77°C)
High Working Temp	160°F / (71°C)	160°F / (71°C)	160°F / (71°C)

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Other Fabric Options

Product Properties	Xguard	Xguard Plus	RPP	18 oz. Vinyl
Weight	26.2 oz./yd ² 888g/m ²	30.61 oz./yd ² (1040g/m ²)	22.6 oz./yd ² (766g/m ²)	19.6 oz./yd ² (665g/m ²)
Thickness	30.4 mils (0.77 mm)	36.5 mils (0.9 mm)	35.2 mils (0.87 mm)	20.3 mils (0.5 mm)
Puncture Resistance	224 lbs (996 N)	238 lbs (1100 N)	113 lbs (503 N)	236 lbs (1000 N)
Ball Burst	616 lbs (2740 N)	841 lbs (3700 N)	324 lbs (1400 N)	629 lbs (2800 N)
Trap Tear	MD – 106 lbs (471 N) TD – 112 lbs (498 N)	MD – 228 lbs (1000 N) TD – 352 lbs (1600 N)	MD – 106 lbs (472 N) TD – 87 lbs (387 N)	MD – 41 lbs (182 N) TD – 44 lbs (196 N)
Hydrostatic Resistance	737 psi (5081 kPa)	800 psi (5.52 MPa)	430 psi (3000 kPa)	760 psi (5200 kPa)
Tensile Property - Break Strength	MD – 413 lbs (1837 N) TD – 449 lbs (1997 N)	MD – 635 lbs (2800 N) TD – 692 lbs (3100 N)	MD – 298 lbs (1300 N) TD – 276 lbs (1200 N)	MD – 479 lbs (2100 N) TD – 469 lbs (2100 N)
Tensile Property - Elongation	MD – 26% TD – 29%	MD – 44% TD – 42%	MD – 32% TD – 65%	MD – 19% TD – 25%
Abrasion	11910 cycles	20000 cycles	25930 cycles	11000 cycles
Low Working Temp	-25°F / (-32°C)	-25°F / (-32°C)	-25°F / (-32°C)	-40°F / (-40°C)
High Working Temp	180°F / (82°C)	180°F / (82°C)	180°F / (82°C)	158°F / (70°C)

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»» Berm Fabric Specifications

Ground Cover Fabric Options

Product Properties	8 oz. NWPP	12 oz. NWPP	16 oz. NWPP	Product Properties	Rubber Matting
Weight	7.67 oz./yd ² (260g/m ²)	11.88 oz./yd ² (403g/m ²)	16 oz./yd ² (542g/m ²)	Specific Gravity	1.06
Thickness	99 mils* (2.5 mm)	117 mils* (3 mm)	175 mils* (4.45 mm)	Weight	75 oz./yd ² 2.5 kg/m ²
Puncture Strength	552 lbs (2500 N)	927 lbs (4100 N)	1025 lbs (4600 N)	Thickness	95 mil (2.4mm)
Grab Tensile Property Strength	MD – 183 lbs (814 N) TD – 199 lbs (885 N)	MD – 298 lbs (1300 N) TD – 379 lbs (1700 N)	MD – 380 lbs (1700 N) TD – 380 lbs (1700 N)	Hardness	70 Shore A
Grab Tensile Property Elongation	MD – 78% TD – 111%	MD – 75% TD – 75%	MD – 50% TD – 50%	Melt Index	2.1g/10min
Trap Tear Strength	MD – 77 lbs (343 N) TD – 87 lbs (387 N)	MD – 102 lbs (454 N) TD – 145 lbs (645 N)	MD – 140 lbs (623 N) TD – 140 lbs (623 N)	Puncture Resistance	54 lbs (240 N)
Micron Rating	100	100	77	Tensile Strength	MD – 620 psi 4300 kpa TD – 780 psi 5400 kpa
Flow Rate	136 gpm/ft ² (5500 L/min/m ²)	90.7 gpm/ft ² (3700 L/min/m ²)	50 gpm/ft ² (2000 L/min/m ²)	Elongation	MD – 220% TD – 290 psi
Permittivity	1.81 s ⁻¹	1.21 s ⁻¹	0.7 s ⁻¹	Tear Strength	MD – 168 ppi (29.4 N/mm) TD – 187 ppi (32.7 N/mm)
* At the time of manufacturing. Handling, storage, and shipping may change these properties.				Fluid Resistance	70 hr @ 75–80°F

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Chemical Resistance

Chemical Resistance for X-Guard Fabric

Element	Rating	Element	Rating	Element	Rating
*Acetic Acid (pH>5)	B	Cyclohexane	B	Mineral Oil	B
Acetone	B	Diethyle Sebacate	X	Naptha	B
Asphalt	T	Dictyl Phthalate (DOP)	B	Nitric Acid (10%)	B
*ASTM #1 Oil	B	Ethyl Acetate	B	Nitric CID (50%)	B
*ASTM #3 Oil	A	*Ethyl Acetate	B	Nitrobenzene	X
*ASTM Reference Fuel A	A	Ethylene Dichloride	X	Perchloroethylene	X
*ASTM Reference Fuel B	B	*Ethylene Glycol	B	Pydraul 312C	X
ASTM Reference Fuel C	B	Formaldehyde	X	Phenol (50%)	B
Automatic Trans. Fluid	B	*Gasoline	B	*Sea Water	B
Benzaldehyde	X	Gear Oil	B	*Soal Solution (1%)	B
Benzene	X	Glycerine	B	*Sodium Hydroxide (40%)	B
Bromine, Anhydrous Liquid	X	*Hydrochloric Acid (10%)	B	*Sulfuric Acid (30%)	B
Butyl Acetate	X	*Isooctane	B	Sulfuric Acid (97%)	B
Butyl Alcohol	T	Isopropyl Alcohol	B	Tannic Acid (10%)	B
*Calcium Chloride (30%)	A	Jet Fuel, JP-4	B	Tetrahydrofuran	X
Calcium Hydroxide Solutions	T	*Kerosene	B	Tributyl Phosphate	B
Calcium Bisulfide	X	Lactic Acid	B	Toluene	B
Carbon Tetrachloride	X	*Linseed Oil	B	*Water	B
Clorobenzene	X	Methyl Alcohol	B	Xylene	B
Chloroform	X	Methyl Ethyl Ketone	X		
Chlorosulfonic Acid	X	*Methylene Chloride	B		

Rating generally correlate as follows:

A	Resistant	May be considered for prolonged contact
B	Somewhat Resistant	May be considered for occasional contact at best
C	Not Resistant	Inappropriate for contact with this chemical
T	No data	Likely to have minor effect
X	No data	Likely to have severe effect

Rate criteria after exposure:

A	<10% volume swell AND little effect on tensile properties
B	10-40% volume swell and/or some loss of tensile properties
C	<40% volume swell and/or significant loss of tensile properties

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Chemical Resistance

Chemical Resistance for 40 Mil LDPE (Low Density Polyethylene) Fabric - P1

Element	Rating	Element	Rating	Element	Rating
Acetaldehyde	GF	Butyric Acid	FN	Ethyl Benzoate	GG
Acetamide, sat.	EE	Calcium Hypochlorite, Sat.	EE	Ethyl Butyrate	GF
Acetic Acid 5%	EE	Cabazole	EE	Ethyl Chlorode, liquid	FN
Acetic Acid 50%	EE	Carbon Disulfide	NN	Ethyl Cyanoacetate	EE
Acetone	NN	Carbon tetrachloride	GF	Ethyl Lactate	EE
Acetonitrile	EE	Cedarwood Oil	FN	Ethylene Chloride	GF
Acrylonitrile	EE	Cellosolve Acetate	EE	Ethylene Glycol	EE
Adipic Acid	EE	Chlorine 10% in air	EF	Ethylene Glycol Methyl Ether	EE
Alanine	EE	Chlorine 10% (moist)	GF	Ethylene Oxide	GF
Allyl Alcohol	EE	Chloroacetic Acid	EE	Fluoride	EE
Aluminum Hydroxide	EE	p-Chloroacetophenone	EE	Flourine	GN
Aluminum Salts	EE	Chloroform	FN	Formaldehyde 10%	EE
Amino Acids	EE	Chromic Acid 10%	EE	Formaldehyde 40%	EE
Ammonia	EE	Chromic Acid 50%	EE	Formic Acid 3%	EE
Ammonium Acetate, sat	EE	Cinnamon Oil	FN	Formic Acid 50%	EE
Ammonium Glycolate	EE	Citric Acid 10%	EE	Formic Acid 98-100%	EE
Ammonium Hydroxide 5%	EE	Cresol	DN	Freon TF	EG
Ammonium Hydroxide 30%	EE	Cyclohexane	DN	Fuel Oil	GF
Ammonium Oxalate	EE	DeCalin	EG	Gasoline	GG
Ammonium Salts	EE	o-Dichlorobenzene	FF	Glacial Acetic Acid	EE
n-Amyl Acetate	EG	p-Dichlorobenzene	DF	Glycerine	EE
Amyl Chloride	FN	Diethyl Benzene	FN	n-Heptane	GF
Aniline	EG	Diethyl Ether	FN	Hydrochloric Acid 1-5%	EE
Banzaldehyde	EE	Diethyl Ketone	NN	Hydrochloric Acid 20%	EE
Benzene	NN	Diethyl Malonate	EE	Hydrochloric Acid 35%	EE
Benzoic Acid, sat.	EE	Diethylene Glycol	EE	Hydrofluoric Acid 4	EE
Benzyl Acetate	EE	Diethylene Glycol Ethyl Ether	EE	Hydrofluoric Acid 48%	EE
Benzyl Alcohol	FN	Dimethyl Formamide	EE	Hydrogen Peroxide 3%	EE
Bromine	FN	Dimethylsulfoxide	EE	Hydrogen Peroxide 30%	EE
Bromobenzene	FN	1,4 Dioxane	GG	Osobutyl Alcohol	EE
Bromoform	NN	Dipropylene Glycol	EE	Isopropyl Acetate	EG
Butadiene	FN	Ether	FN	Isopropyl Alcohol	EE
n-Butyl Acetate	EG	Ethyl Acetate	EE	Osopropyl Benzene	GF
n-Butyl Alcohol	EE	Ethyl Alcohol (absolute)	EE	Kerosene	GG
sec-Butyl Alcohol	EE	Ethyl Alcohol 40%	EE	Lactic Acid 3%	EE
tert-Butyl Alcohol	EE	Ethyl Benzene	GF	Lactic Acid 85%	EE

E G F N

Rating Legend on Next Page

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Chemical Resistance

Chemical Resistance for 40 Mil LDPE (Low Density Polyethylene) Fabric - P2

Element	Rating	Element	Rating	Element	Rating
Methoxyethyl Oleate	EE	Propylene Glycol	EE	Sulfuric Acid, 98%	GG
Methyl Alcohol	EE	Propylene Oxide	EE	Sulfur Dioxide, liq., 46psi	FN
Methyl Ethyl Ketone	NN	Resorcinol sat.	EE	Sulfur Dioxide, wet or dry	EE
Methyl Isobutyl Ketone	NN	Resorcinol 5%	EE	Sulfur Salts	GF
Methyl Propyl Ketone	EG	Salicylaldehyde	EE	Tartaric Acid	EE
Methylene Chloride	FN	Salicylic Acid, powder	EE	Tetrahydrofuran	GF
Mineral Oil	EE	Salicylic Acid, sat.	EE	Thionyl Chloride	NN
Nitric Acid 1-10%	EE	Salt Solutions, metallic	EE	Toluene	GG
Nitric Acid 50%	GN	Silver Acetate	EE	Tributyl Citrate	EG
Nitric Acid 70%	GN	Sodium Nitrate	EE	Trichloroethane	FN
Perchloroethylene	NN	Sodium Acetate, sat.	EE	Trichloroethylene	FN
Phenol, Crystals	GF	Sodium Hydroxide 1%	EE	Triethylene Glycol	EE
Phosphoric Acid 1-5%	EE	Sodium Hydroxide 50% to sat.	EE	Tripropylene Glycol	EE
Phosphoric Acid 85%	EE	Sodium Hypochlorite	EE	Trupentine	GG
Pine Oil	EG	15%Stearic Acid, crystals	EE	Undecyl Alcohol	EG
Potassium Hydroxide 1%	EE	Sulfuric Acid 1-6%	EE	Urea	EE
Potassium Hydroxide conc.	EE	Sulfuric Acid 20%	EE	Vinylidene Chloride	FN
Propane Gas	FN	Sulfuric Acid 60%	EE	Xylene	GF
				Zinc Stearate	EE

Rating generally correlate as follows:

*Test each chemical first before storing in plastic. The first letter of each pair represents the resistance rating at 20 degrees Celsius; the second at 50 degrees Celsius.

- E** No Damage after 30 days of constant exposure.
- G** Little or no damage after 30 days of constant exposure.
- F** Some effect after seven days of constant exposure. Depending on the plastic, the effect may be cracking, crazing, and loss of strength or discoloration. Solvents may cause softening, swelling and permeation losses with HDPE; the solvent effects on these materials are normally reversible.
- N** Not recommended for continuous use. Immediate damage may occur. Depending on the plastic, the effect will be severe cracking, crazing, loss of strength, discoloration, deformation, dissolution or permeation loss.

Effects of Chemicals on Plastics:

Chemicals can affect the weight, strength, color, dimensions, flexibility and surface appearance of plastics. The basic models of interaction that cause these changes are: (1) chemical attack on the polymer chain, with resultant reduction in physical properties, including oxidation reaction of functional groups in, or on, the chain, with resultant reduction in physical properties, including oxidation; reaction of functional groups, in or on the chain; and depolymerization; (2) physical change, including absorption of solvents, resulting in softening and swelling of the plastic; permeation of solvent through the plastic; or dissolution in a solvent; and (3) stress-cracking from the interaction of a "stress-cracking agent" with molded-in or external stresses.

The reaction combination of compounds of two or more classes may cause a synergistic or undesirable chemical effect. Other factors affecting chemical resistance include temperature, pressure, internal or external stresses (such as centrifugation), and length of exposure to and concentration of the chemical. As temperature increases, resistance to attack decreases.

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