



**TITAN**

**BUILD YOUR LEGEND**

**Geomembrane Chemical  
Resistance Guide**

**Titan Environmental  
Titan Environmental USA**

# Geomembrane Chemical Resistance Guide

## Chemical Resistance Guide

A	Fluid has little or no effect.
B	Fluid has minor to moderate effect.
C	Fluid has severe effect.
X	No Data - Likely severe effect.
T	No Data - Likely minor effect.

## Geomembrane Material Codes

HDPE	High Density Polyethylene (HDPE)
PVC	Polyvinyl Chloride (PVC)
LLDPE	LLDPE
RPE	Reinforced Polyethylene
PP	Polypropylene
PU	Polyurethane
EIA	Ethylene Interpolymer Alloy (EIA) (Seaman XR-5)

Material	%	HDPE	PVC	LLDPE	RPE	PP	PU	EIA
Acetic Acid	5%	A	A	A	A	A	A	A
Acetic Acid	50%	A	X	A	B	T	X	C
Acetic Acid	Gla.	A	C	A	C	A	X	X

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### CHEMICAL RESISTANCE RATING

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Acetic Anhydride		A	X	C	C	T	X	X
Acetone		A	C	A	C	C	C	X
Alkyl Alcohol			C	A		T	T	T
Alkyl Chloride			C			X	X	X
Aluminum Chloride		A	B	A	A	T	T	T
Aluminum Flouride		A	X	A	A	T	T	T
Aluminum Sulfate		A	A	A	A	T	T	T
Ammonium Carbonate		A	A	A	A	T	T	T
Ammonium Chloride		A	A	A	A	T	T	T
Ammonium Fluoride	20%	A	T	A	A	T	T	T
Ammonium Hydroxide	30%	A	25	A	A	A	T	A
Ammonium Nitrate		A	25	A	A	A	T	T
Ammonium Phosphate		A	T	A		T	T	T
Ammonium Sulphate		A	A	A	A	T	T	B
Ammonium Sulphide		A	22		A	T	T	T
Amyl Acetate		B	C	C	C	C	T	X
Amyl Alcohol		A	T	A	B	T	T	T
Amyl Chloride		B	T	A	C		T	X
Aniline		A	X	B	B	A	X	X
Animal Oil		T	B	A		T		A
Antimony Chloride		A	T		A	A	A	T
Aqua Regia		B	B	C	C	X	X	X
ASTM Fuel A		T	X			C	A	A
ASTM Fuel B		T	C			C	A	B
ASTM Fuel C		T	C			C	B	
ASTM Oil #1		T	T				T	T
ASTM Oil #2		T	X				T	A
ASTM Oil #3		T	X				T	T
Asphalt		A	C	A			T	T
Barium Carbonate		A	T	A	A	T	T	T
Barium Hydroxide		A	T	A	A	T	T	T

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Barium Sulphate		A	T	A	A	T	T	T
Benzene	<1%	T	T	B	T	T	T	T
Benzene	25%	T	X	C	X	X	T	T
Benzene	100	B	X	C	X	C	T	C
Benzoic Acid		A	T	A	A	T	T	T
Borax Solutions		A	T	A	A	T	T	T
Boric Acid		A	T	A	A	T	T	T
Bromic Acid	10%	A	T		A	T	X	T
Bromine; Anhydrous		B	X	C	C	X	X	
Butyl Acetate		B	X	B	C	T	X	X
Butyl Alcohol		A	T	A	B	A	T	T
Butyl Phenol		A	X			T	X	X
Butyric Acid		A	T	C	C	T	X	X
Calcium Bisulphate		A	T	A		T	T	T
Calcium Carbonate		A	A	A	A	A	T	T
Calcium Chloride		A	A	A	A	T	T	T
Calcium Hydroxide		A	T	A	A	T	T	T
Calcium Hypochlorite		A	A	A	A	T	T	A
Calcium Nitrate	50%	A	T	A	A	T	T	T
Calcium Sulphate		A	2%	A	A	T	A	T
Carbon Disulfide		B	X	C	C	C	X	X
Carbon Tetrachloride		C	C	C	C	C	C	X
Carbonic Acid		A	T	A	A	C	T	T
Castor Oil		A	X	A	B	T	T	T
Chlorine Gas		C	X	X	C	X	X	T
Chloracetic Acid		A	X	A	A	X	X	X
Chlorobenzene		B	C	C	C	X	X	X
Chloroform		C	C	C	C	X	X	X
Chlorosulfonic Acid		C	C	C	C	X	X	X

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Chrome Alum		A	T		A	T	T	T
Chromic Acid	30%	A	T	A	A	X	X	B
Chromium Trioxide		A	T			X	X	
Citric Acid		A	A	A	B	T	T	T
Copper Chloride		A	T	A	A	T	T	T
Copper Nitrate		A	T	A	A	T	T	T
Copper Sulphate		A	T	A	A	T	T	T
Corn Oil		A	C	A	A	T	T	A
Cottonseed Oil		A	C	A	B	T	T	A
Crude Oil		T	C	B			T	T
Cyclohexane		C	X	C		X	T	
Cyclohexanol		A	X	C	B	T	T	
Cyclohexanone		C	C	C	C	A	X	X
Dextrin		A	T	A	A	T	T	T
Dibutyl Phthalate		B	X	B	B		X	C
Diesel Fuel		A	C	B			A	A
Diethyl Ether		B	X	C		X	X	X
Diethyl Keytone		B	X	B	C	X	X	X
Diethyl Sebacate			X				X	X
Dimethylamine		C	C	C	C		X	X
Diocetyl Phthalate		A	X		B		X	C
Disodium Phosphate		A	T		A	T	T	T
Epichlorohydrin		A	X					
Ethyl Acetate		B	C	B	C			C
Ethyl Alcohol		A	A	A	B	T		A
Ethyl Bromide		A	X			X		X
Ethyl Chloride		C	X	C	C	X		X

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Ethylene Dichloride		B	X	C	C	T	X	X
Ethylene Glycol		A	A	A	B	A	T	A
Ethylene Oxide		A	X	B		T	X	X
Ferric Chloride		A	T	A	A	T	T	T
Ferric Nitrate		A	T	A	A	T	T	T
Ferrous Chloride		A	T	A	A	T	T	T
Ferrous Sulfate		A	T	A	A	T	T	T
Fluosilicic Acid		A	A	A	32	T	X	T
Formaldehyde	40%	A	C	A	B	A	B	
Formic Acid		A	C	A	A	A	X	
Furfural		B	X	C	C	X	X	X
Gallic Acid		A	T	A	B	C	X	
Gasoline	<25 BTX	B	C	B-C	C	C	A	A
Gasoline	>25 BTX	B	C		C	C	A	
Glucose		A	T	A	A	T	T	T
Glycerine		A	X	A	B		T	A
Hexane		B	C	B			A	T
Hydraulic Fluid		A	C	B			X	A
Hydrazine		A	X	C			X	X
Hydrobromic Acid		A	T	A	50		X	T
Hydrochloric Acid	20%	A	A	A	A	A	X	A
Hydrochloric Acid	37%	A	A	A	A	T	X	A
Hydrocyanic Acid		A	T	A	A	T	T	T
Hydrofluoric Acid	20%	A	T	A	A		X	T
Hydrofluoric Acid	75%	A	T	A	A		X	T
Hydrofluosilicic Acid	30%	A	A					T
Hydrogen Peroxide	3%	A	A	A	A	X	A	A

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Hydrogen Peroxide	10%	A	A	A	A	X	T	A
Hydrogen Sulfide		A	A	A	A	T	T	T
Hydroquinone		A	T	A	A	C		
Iso Octane		A	X			A	A	T
Isopropyl Alcohol	10%	A	T	A		T	A	A
JP-4 Jet Fuel		A	X			C	A	A
Jet A		A	X	B		X	T	T
Jet B		A	X			X	T	T
Kerosene		B	A	B		X	A	A
Lactic Acid		A	B	A	B	T	X	T
Lead Acetate		A	T	A	A	T	T	T
Linseed Oil		A	X	B	B		T	A
Lubricating Oil		A	C	B	X		T	T
Magnesium Carbonate		A	A	A	A	T	T	T
Magnesium Chloride		A	T	A	A	T	T	T
Magnesium Hydroxide		A	T	A	A	A	T	A
Magnesium Nitrate		A	T	A	A	T	T	T
Magnesium Sulphate		A	T	A	A	T	T	T
Malic Acid		A	T		A	T	T	T
Mercuric Chloride		A	T		A	T	T	T
Methyl Alcohol		A	T	A	B	T		A
Methyl Ethyl Keytone		C	C	C	C	X	C	C
Mineral Oil		A	B	B	B		A	T
Mineral Spirits		A	X	B		A	T	T
Naptha		B	B	B	C	C	X	T
Napthalene		A	C	C	C	X	X	X
Nitric Acid	10%	A	B	A	A	T	X	A
Nitric Acid	50%	A	B	A	A	A	X	C

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Nitric Acid	70%	A	X	B	B	X	X	X
Nitro Benzene		C	C	C	C	X	X	X
Oleic Acid		B	T		C	T	T	T
Oleum	25%	C	X		C		X	
Oxalic Acid		A	A	A	A	T	T	
Palmitic Acid		A	T			T	T	T
Perchloroethylene	<1%	T	T	B		X	T	T
Perchloroethylene	100	C	X	C	C	X	C	C
Phenol		A	X	C	5%	T	C	B
Phenol Formaldehyde			C			T	X	T
Phosphoric Acid	50%	A	A	A	A	T	C	B
Phosphoric Acid	75%	A	A	A	A	T	X	X
Phosphorous Yellow			X			T	X	T
Phosphorous Pentoxide		A	T			T	X	X
Photographic Solutions		A		A	A		T	T
Phthalate Plasticizer		A	X				C	C
Pickling Solutions		A		A	B		X	X
Potassium Bicarbonate		A	A	A	A	T	T	T
Potassium Carbonate		A	A	A	A	T	T	T
Potassium Chromate	40%	A	T	A	A	T	T	T
Potassium Cyanide		A	T	A	A	T	T	T
Potassium Dichromate		40	T	A	40	T	T	T
Potassium Hydroxide		A	25	A	A	A	T	T
Potassium Nitrate		A	A	A	A	T	T	T
Potassium Perchlorate	10%	A	T	A	A	T	T	T
Potassium Permanganate		20	T	A	20	T	T	T
Potassium Sulfate		A	T	A	A	T	A	T
Pyridine		A	X	A	A		X	X

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Salt Water		A	A	A	A	T	A	A
Silicone Grease		A	T	A		T		T
Silver Nitrate		A	X	A	A	T	T	T
Skydrol Hydraulic Fluid			X	C		A	C	C
Soap Solutions		B	A	A	A	T	A	A
Sodium Acetate		A	T	A	A	T	A	T
Sodium Bicarbonate		A	A	A	A	T	A	T
Sodium Bisulphite		A	T	A	A	T	T	T
Sodium Borate		A	T	A	A	T	T	T
Sodium Carbonate		A	A	A	A	T	T	T
Sodium Chlorate		A	T	A	A	T	T	T
Sodium Chloride		A	A	A	A	T	A	T
Sodium Dichromate	20%	100	T	A	A	T	T	T
Sodium Ferrocyanide		A	T	A	A	T	T	T
Sodium Fluoride		A	T	A	A	T	T	T
Sodium Hydroxide	25%	A	A	A	A	X	T	A
Sodium Hydroxide	60%	A	X	A	A	X		A
Sodium Hypochlorite		A	12	A	A	C	A	A
Sodium Nitrate		A	T	A	A	T	T	T
Sodium Sulphate		A	A	A	A	A	T	T
Soybean Oil		A	X				T	A
Stannous Chloride		A	T	A	A	T	T	X
Stearic Acid		A	T	A	B	T	A	A
Styrene		C	X		X	X	X	X
Sulphuric Acid	10%	A	A	A	A	T	X	A
Sulphuric Acid	40%	A	B	A	A	A	X	
Sulphuric Acid	98%	B	C	B	C	X	X	C

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Tannic Acid		10	T	A	B	T	X	T
Tartaric Acid		A	T	A	10	T	T	T
Tetrahydrofuran		B	C	C	C	X	X	X
Toluene	<1%	T	T	B		C	T	T
Toluene	25%	T	X	C		X	T	T
Toluene	100	B	X	C	C	X	C	C
Transformer Oil		A	C	B	B		T	T
Triethanolamine		A	X		A		B	X
Trisodium Phosphate		A	T	A	A	T	T	T
Tung Oil			X			T		T
Turpentine		B	T	C	C		B	T
Urea		A	30	A	A	T	T	T
Vegetable Oil		A	C	B		A	A	A
Water		A	A	A	A	A	A	A
Xylene	<1%	T	T	B		X	T	T
Xylene	25%	T	X	C		X	T	T
Xylene	100	C	X	C	C	X	X	C
Zinc Chloride		A	A	A	A	T	T	T
Zinc Sulphate		A	T	A	A	T	T	T

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