

The HDPE geomembrane, is high performance for Chemical Resistance. The **Proflex GL** Geomembrane Sheet is uses for Waste Water Pond, Marine Culture Farming, Lake, Agriculture Reservoir & Tanks Lining,

- Composites of Materials:** High Density Polyethylene “HDPE”
- Thickness of HDPE Geomembrane:** 0.75, 1.00, 1.50, 2.00 & 2.50
- Chemical or UV Resistance:** Excellent [Please refer to below item details]
- Quality Properties:** Achieved to Worldwide Standards

LaMaCo Proflex GL, is the world’s leading supplier of high quality, polyethylene geomembranes. LaMaCo Proflex GL polyethylene geomembranes are resistant to a great number and combinations of chemicals. Note that the effect of chemicals on any material is influenced by a number of variable factors such as temperature, concentration, exposed area and duration. Many tests have been performed that use geomembranes and certain specific chemical mixtures. Naturally, however, every mixture of chemicals cannot be tested for, and various criteria may be used to judge performance. Reported performance ratings may not apply to all applications of a given material in the same chemical. Therefore, these ratings are offered as a guide only.

SMOOTH SHEET – HDPE GEOMEMBRANE SPECIFICATIONS

Property	Test Method	Unit	Minimum Value of Require			
HDPE Geomembrane Model Type:		Proflex	GL100	GL150	GL200	GL250
Thickness (avg.)	ASTM D 5199	mm.	1.00	1.50	2.00	2.50
Minimum single value		mm.	0.90	1.35	1.80	2.25
Density	ASTM D 1505	g/cc	0.94	0.94	0.94	0.94

Tensile Properties Either ASTM D 638

Yield Strength	TYPE IV,2 ipm	N/mm2	15	22	29	37
Break Strength		N/mm2	27	40	53	67
Yield Elongation	G.L. 1.3 in.	%	12	12	12	12
Break Elongation	G.L. 2.0 in.	%	700	700	700	700
Tear Resistance	ASTM D 1004	N	125	187	249	311
Puncture Resistance	ASTM D 4833	N	320	480	640	800
Carbon Black Content	ASTM D 1603	%		2-3		
Notch Constant Tensile	ASTM D 5397	hr.	300	300	300	300

Property	Test Method	Unit	Confirmed Tested Value of			
			Proflex	GL100	GL150	GL200
HDPE Geomembrane Model Type:						
Thickness (avg.)	ASTM D 5199	mm.	1.00	1.50	2.00	2.50
Minimum single value		mm.	0.90	1.35	1.80	2.25
Density	ASTM D 1505	g/cc	0.94	0.94	0.94	0.94
Width	-	m.		4.00-8.00		
Roll Length (approximate)	-	m.		100-150		

Tensile Properties Either ASTM D 638

Yield Strength	TYPE IV,2 ipm	N/mm2	16	23	30	38
Break Strength		N/mm2	29	43	55	69
Yield Elongation	G.L. 1.3 in.	%	12	12	12	12
Break Elongation	G.L. 2.0 in.	%	700	700	700	700
Tear Resistance	ASTM D 1004	N	130	193	253	317
Puncture Resistance	ASTM D 4833	N	320	492	665	810
Notch Constant Tensile	ASTM D 5397	hr.	300	300	300	300
Melt Index	ASTM D 1238	g/10min		<1.0		
Carbon Dispersion	ASTM D 5596			CAT 1 or 2		
Oxidative Induction Time	ASTM D 3895	min.		>100		
Low Temp. Brittleness	ASTM D746	C		<-77		
Dimensional Stability	ASTM D1204,	100 C,1hr [%]		+/-2		

This information is provided for reference purposes only and is not intended as a warranty or guarantee. LaMaCo assumes no liability in connection with the use of this information. Check with LaMaCo for current, standard minimum quality assurance procedures.

Abbreviations

S=Satisfactory
L=Limited application possible

U=Unsatisfactory
-=Not tested

Concentration

sat. sol. Saturated aqueous solution, prepared at 20°C (68°F)
sol. aqueous solution with concentration above 10% but below saturation level
dil.sol. diluted aqueous solution with concentration below 10%

		Resistance at: 20°C to 60°C				Resistance at: 20°C to 60°C	
Medium	Concentration			Medium	Concentration		
A				D			
Acetic acid	100%	S	L	Carbon monoxide	100%	S	S
Acetic acid	10%	S	S	Chloracetic acid	sol.	S	S
Acetic acid anhydride	100%	S	L	Carbon tetrachloride	100%	L	U
Acetone	100%	L	L	Chlorine, aqueous solution	sat.sol.	L	U
Adipic acid	sat.sol.	S	S	Chlorine, gaseous dry	100%	L	U
Allyl alcohol	96%	S	S	Chloroform	100%	U	U
Aluminium chloride	sat.sol.	S	S	Chromic acid	20%	S	L
Aluminium fluoride	sat.sol.	S	S	Chromic acid	50%	S	L
Aluminium sulfate	sat.sol.	S	S	Citric acid	sat.sol.	S	S
Alum	sol.	S	S	Copper chloride	sat.sol.	S	S
Ammonia, aqueous	dil.sol.	S	S	Copper nitrate	sat.sol.	S	S
Ammonia, gaseous dry	100%	S	S	Copper sulfate	sat.sol.	S	S
Ammonia, liquid	100%	S	S	Cresylic acid	sat.sol.	L	-
Ammonium chloride	sat.sol.	S	S	Cyclohexanol	100%	S	S
Ammonium fluoride	sol.	S	S	Cyclohexanone	100%	S	L
Ammonium nitrate	sat.sol.	S	S	E			
Ammonium sulfate	sat.sol.	S	S	Decahydronaphthalene	100%	S	L
Ammonium sulfide	sol.	S	S	Dextrine	sol.	S	S
Amyl acetate	100%	S	L	Diethyl ether	100%	L	-
Amyl alcohol	100%	S	L	Diethylphthalate	100%	S	L
Aniline	100%	S	L	Dioxane	100%	S	S
Antimony trichloride	90%	S	S	F			
Arsenic acid	sat.sol.	S	S	Ferric chloride	sat.sol.	S	S
Aqua regia	HCl-HNO33/1	U	U	Ferric nitrate	sol.	S	S
B				Ferric sulfate	sat.sol.	S	S
Barium carbonate	sat.sol.	S	S	Ferrous chloride	sat.sol.	S	S
Barium chloride	sat.sol.	S	S	Ferrous sulfate	sat.sol.	S	S
Barium hydroxide	sat.sol.	S	S	Fluorine, gaseous	100%	U	U
Barium sulfate	sat.sol.	S	S	Fluorosilicic acid	40%	S	S
Barium sulfide	sol.	S	S	Formaldehyde	40%	S	S
Benzaldehyde	100%	S	L	Formic acid	50%	S	S
Benzene	-	L	L	Formic acid	98-100%	S	S
Benzoic acid	sat.sol.	S	S	Furfuryl alcohol	100%	S	L
Beer	-	S	S	G			
Borax(sodium tetraborate)	sat.sol.	S	S	Gasoline	-	S	L
Boric acid	sat.sol.	S	S	Glacial acetic acid	96%	S	L
Bromine, gaseous dry	100%	U	U				
Bromine, liquid	100%	U	U				
Butane, gaseous	100%	S	S				
1-Butanol	100%	S	S				
Butyric acid	100%	S	L				

Resistance at:
20°C to 60°C

Resistance at:
20°C to 60°C

Medium	Concentration			Medium	Concentration		
C				Glucose	sat.sol.	S	S
Calcium carbonate	sat.sol.	S	S	Glycerine	100%	S	S
Calcium chlorate	sat.sol.	S	S	Glycol	sol.	S	S
Calcium chloride	sat.sol.	S	S				
Calcium nitrate	sat.sol.	S	S				
Calcium sulfate	sat.sol.	S	S				
Calcium sulfide	dil.sol.	L	L				
Carbon dioxide,gaseous dry	100%	S	S				
Carbon disulfide	100%	L	U				
H							
Heptane	100%	S	U	Potassium permanganate	20%	S	S
Hydrobromic acid	50%	S	S	Potassium persulfate	sat.sol.	S	S
Hydrobromic acid	100%	S	S	Potassium sulfate	sat.sol.	S	S
Hydrochloric acid	10%	S	S	Potassium sulfite	sol.	S	S
Hydrochloric acid	35%	S	S	Propionic acid	50%	S	S
Hydrocyanic acid	10%	S	S	Propionic acid	100%	S	L
Hydrofluoric acid	4%	S	S	Pyridine	100%	S	L
Hydrofluoric acid	60%	S	L				
Hydrogen	100%	S	S	Q			
Hydrogen peroxide	30%	S	L	Quinol (Hydroquinone)	sat.sol.	S	S
Hydrogen peroxide	90%	S	U				
Hydrogen sulfide,gaseous	100%	S	S	S			
L				Salicylic acid	sat.sol.	S	S
Lactic acid	100%	S	S	Silver acetate	sat.sol.	S	S
Lead acetate	sat.sol.	S	-	Silver cyanide	sat.sol.	S	S
M				Silver nitrate	sat.sol.	S	S
Magnesium carbonate	sat.sol.	S	S	Sodium benzoate	sat.sol.	S	S
Magnesium chloride	sat.sol.	S	S	Sodium bicarbonate	sat.sol.	S	S
Magnesium hydroxide	sat.sol.	S	S	Sodium biphosphate	sat.sol.	S	S
Magnesium nitrate	sat.sol.	S	S	Sodium bisulfite	sol.	S	S
Maleic acid	sat.sol.	S	S	Sodium bromide	sat.sol.	S	S
Mercuric chloride	sat.sol.	S	S	Sodium carbonate	sat.sol.	S	S
Mercuric cyanide	sat.sol.	S	S	Sodium chlorate	sat.sol.	S	S
Mercuric nitrate	sol.	S	S	Sodium chloride	sat.sol.	S	S
Mercury	100%	S	S	Sodium cyanide	sat.sol.	S	S
Methanol	100%	S	S	Sodium ferricyanide	sat.sol.	S	S
Methylene chloride	100%	L	-	Sodium ferrocyanide	sat.sol.	S	S
Milk	-	S	S	Sodium fluoride	sat.sol.	S	S
Molasses	-	S	S	Sodium hydroxide	40%	S	S
N				Sodium hydroxide	sat.sol.	S	S
Nickel chloride	sat.sol.	S	S	Sodium hypochlorite	15%active chlorine	S	S
Nickel nitrate	sat.sol.	S	S	Sodium nitrate	sat.sol.	S	S
Nickel sulfate	sat.sol.	S	S	Sodium nitrite	sat.sol.	S	S
Nicotinic acid	dil.sol.	S	-	Sodium orthophosphate	sat.sol.	S	S
Nitric acid	25%	S	S	Sodium sulfate	sat.sol.	S	S
Nitric acid	50%	S	U	Sodium sulfide	sat.sol.	S	S
Nitric acid	75%	U	U	Sulfur dioxide,dry	100%	S	S
Nitric acid	100%	U	U	Sulfur trioxide	100%	U	U
O				Sulfuric acid	10%	S	S
Oils and Grease	-	S	L	Sulfuric acid	50%	S	S
Oleic acid	100%	S	L	Sulfuric acid	98%	S	U
Orthophosphoric acid	50%	S	S	Sulfuric acid	fuming	U	U
Orthophosphoric acid	95%	S	L	Sulfurous acid	30%	S	S
Oxalic acid	sat.sol.	S	S				
Oxygen	100%	S	L	T			
Ozone	100%	L	U	Tannic acid	sol.	S	S
P				Tartaric acid	sol.	S	S
Petroleum (kerosene)	-	S	L	Thionyl chloride	100%	L	U
Phenol	sol.	S	S	Toluene	100%	L	U
Phosphorus trichloride	100%	S	L	Triethylamine	sol.	S	L
Photographic developer	cust.conc.	S	S				
Picric acid	sat.sol.	S	-	U			
Potassium bicarbonate	sat.sol.	S	S	Urea	sol.	S	S
Potassium bisulfide	sol.	S	S				
Potassium bromate	sat.sol.	S	S	W			
				Water	-	S	S
				Wine vinegar	-	S	S

**Resistance at:
20°C to 60°C**

**Resistance at:
20°C to 60°C**

Medium	Concentration			Medium	Concentration		
Potassium bromide	sat.sol.	S	S	Wines and liquors	-	S	S
Potassium carbonate	sat.sol.	S	S	X			
Potassium chlorate	sat.sol.	S	S	Xylenes	100%	L	U
Potassium chloride	sat.sol.	S	S	Y			
Potassium chromate	sat.sol.	S	S	Yeast	sol.	S	S
Potassium cyanide	sol.	S	S	Z			
Potassium dichromate	sat.sol.	S	S	Zinc carbonate	sat.sol.	S	S
Potassium ferricyanide	sat.sol.	S	S	Zinc chloride	sat.sol.	S	S
Potassium ferrocyanide	sat.sol.	S	S	Zinc (II) chloride	sat.sol.	S	S
Potassium fluoride	sat.sol.	S	S	Zinc (IV) chloride	sat.sol.	S	S
Potassium hydroxide	10%	S	S	Zinc oxide	sat.sol.	S	S
Potassium hydroxide	sol.	S	S	Zinc sulfate	sat.sol.	S	S
Potassium hypochlorite	sol.	S	L				
Potassium nitrate	sat.sol.	S	S				
Potassium orthophosphate	sat.sol.	S	S				
Potassium perchlorate	sat.sol.	S	S				

Specific immersion testing should be undertaken to ascertain the suitability of chemicals not listed above with reference to special Requirements.

- (S) Satisfactory:** Liner material is resistant to the given reagent at the given concentration and temperature. No mechanical or chemical degradation is observed.
- (L) Limited Application Possible:** Liner material may reflect some attack. Factors such as concentration, pressure and temperature directly. Effect liner performance against the given media. Application, however, is possible under less severe conditions, e.g. lower concentration, Secondary containment, additional liner protections, etc.
- (U) Unsatisfactory:** Liner material is not resistant to the given reagent at the given concentration and temperature. Mechanical and/or Chemical degradation is observed.
- (-) Not tested**



LaMaCo System Sdn Bhd

407, Jalan Perusahaan 6, Taman Bandar Baru Mergong,
05150 Alor Setar, Kedah. Malaysia.
Tel : +60-4-771 1111 Fax : +60-4-772 4444
Http : www.lamaco.com
Email : info@lamaco.com

Important 1: While the information and data sheet contained in this promotional literature are presented in good faith and believed to be reliable, they do not constitute a part of our terms and conditions of sales unless specifically incorporated in our Order acknowledgement. Nothing herein shall be deemed to constitute a warranty, express or implied, that said information or data sheet are correct or that the products described are merchantable or fit for a particular purpose, or that said information, data sheet or products can be used without infringing patent of third parties.

Important 2: **LaMaCo Malaysia** products are not guaranteed against defective materials and manufacture & are sold subject to its standard Terms & Conditions of sale, copies of which may be obtained on request. Whilst **LaMaCo Malaysia** endeavors to ensure that any advice, recommendation, specification or information is accurate and correct, it cannot- because it has no direct or continuous control over where or how its products are applied – accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance any advice, specification, recommendation or information given by it.

Health & Safety Some of the components of this product may be hazardous during mixing and application. Please consult the relevant Health & Safety Data Sheets, available from **LaMaCo Malaysia** on request and sent with each delivery.