

Since 1985

1. General

Insuwrap offers waterproofing membranes for lining of lakes and ponds, septic tanks, planter boxes & playgrounds to prevent water seepage. Installation is economical due to the minimum civil works and site preparations required to install the Liner. One of the most economical factors is that no concrete layer is required. PVC liner can be used directly on the smooth cushion surfaces such as fine sand, smooth finish sub base, etc.

The excellent properties of Insuwrap waterproofing membranes are particularly welcome in areas where there is a risk of subsidence or where the soil is very light and permeable to water.

The membrane has a high elongation at breaking point, high tensile strength and great resistance to surface pressure. Another important advantage, is quick and simple installation. The pond can be filled with water immediately.

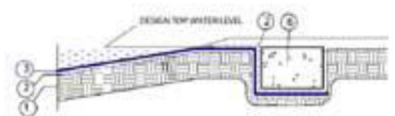
2. Site Preparation



After the basin is excavated, the surface of the excavated area should be free from sharp objects. If the surface consists of coarse particles, a layer of fine sand should be spread on top. Water inlet and outlet pipes will be

provided. The membrane is joined to inlet and outlet pipes by means of flanges to ensure a tight seal.

3. Application on Basin's end



For the upper fastening of the membrane, a circular trench should be excavated around the basin (about 40 cm width and 30cm depth) INSUWRAP membranes are installed covering the bottom of the trench and applied towards

the basin. After the membrane is placed in position inside the circular trench the trench is filled with the excavated soil or concrete.

4. Waterproofing membranes (type L / LR-UV)

The membrane could be rolled out on the prepared surface, aligned and cut to the required length. The surface must be smooth, otherwise; a protection layer is required. The protection layer can be fine sand or non woven polyester (140 gm/m²). If the required liner is ultra violet resistant and reinforced (LR-UV) there is no need to cover it, otherwise; it should be covered by soft sand for horizontal surface and sand and gravel for sloped one (Type L) It is also possible to prefabricate waterproofing liners from INSUWRAP membranes if the shape of the surface of the basin is certain and known.

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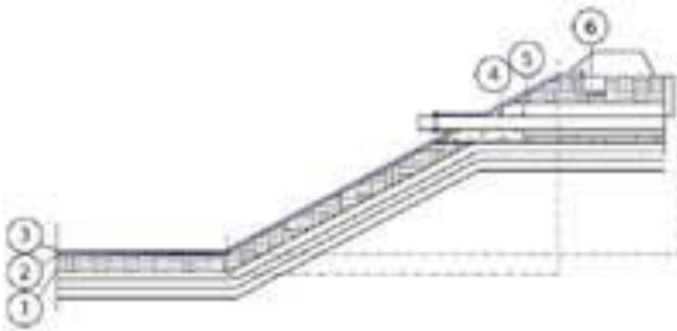


5. Dressing to pipes and drains

Apply Insurbond-106 contact adhesive to pipes outlets and around the drains and to the Insuwrap PVC waterproofing liner and then contact liner to the pipe and drain. Clamping rings shall be placed at the top end of the liner, sealant is then applied all around the pipe where the PVC ends.

6. Flood Test

Flood test consists of maintaining water over the entire surface, for a period of 24 hours. In case of any leakage the source of leakage will be determined. Water will be drained and repair works will be carried out in the affected area. As per requirements, water test will be repeated.



Drawing Key

1- Compacted Sub Base

2- Separation Layer

3- Insuwrap PVC Liner
(1500LR - UV).
Reinforced & UV Resistant.

4- Out Let Pipe Concrete
Support

5- Soft Sand (Pipe Protection)

6- Concrete Anchoring (0.30 X
0.40m) Around the Pond

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➤ **Agricultural Purposes:**
Proposed scope of work for
INSUWRAP PVC Lining System for
Playing Fields of Stadiums

1 General :

Insuwrap offers waterproofing membranes for lining of playing fields in stadiums & playgrounds to prevent water permeability. Installation is economical due to the minimum civil work and site preparations required to install the Liner.

2 Site Work :

1. The sand of the playing field area should be leveled and compacted.
2. Insuwrap PVC " L" lining membrane will be installed all over the playing field as well as the sides & bottoms of the trenches. PVC membrane will be 50 mm hot air welded at overlaps to provide a continuous sealed PVC system.
3. Polyethylene protection layer, 500 micron, to be installed above all PVC liner.
4. Gravel (4 - 5 cm) thick to be spread in the trenches to receive drainage piping & sprinkling systems (specified by manufacturer).
5. 200 mm thick agricultural soil mix to be spread all over the field. Field is ready to receive natural grass layer.

PRODUCT DESCRIPTION

Insuwrap PVC LRUV waterproofing is a Calendered high polymer waterproofing membrane, (thickness 1.50mm) reinforced with polyester mesh, ultra violet resistant, not compatible with bitumen, manufactured to the highest International standards offering high physical properties and long term durability.

Insuwrap PVC 1500 LR-UV is manufactured using the best raw materials produced by SABIC.

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Test	STANDARD Requirements DIN 16735	Results, PVC LR- UV
Thickness (mm)		1.5
Mass (kg/mm2		1.96
Tensile strength (N/ m2	Min. 8.0 N / mm2	>15.0
Elongation at break	Min. 150 %	>300 %
Thermal Stability (90C-6hrs)	Change less than 1 %	0.10%
Tear Strength (N)	80 N (Min)	>100N
Puncture Resistance	Drop hammer 500 gms, no leak on falling from 300 mms	passed
Water vapour defusion resistance (u)	Less than 30, 000	<22,000
Cold bend	No cracks at - 20°C	No cracks at - 30°C
Artificial Weathering	AS per BS 3900 Part F3 5000 hours Exposure	Passed
Resistance to Algae & Rot		High Resistance

Test	DIN 16730 STANDARD Requirements	Results, PVCL
Thickness (mm)		1.5
Mass (kg/m2)		1.96
Tensile strength (N/mm2)	Min 15 N /mm2	>17.0
Elongation at break	200%	>300%
Thermal stability (6hrs - 90°C)	Less than 2 %	<0.7%
Tear Strength (N)	Min 80 N	>95N
Puncture resistance	drop hammer 500gms, from 300mm no leak	passed
Water vapour defusion resistance (u)	Less than 30,000	<21,000
Cold Bend	No cracks at - 20°C	No cracks at - 30°C
Resistance to Algae & rot		High Resistance
Fire class	DIN 4102	Pass (Class B2)

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Projects

<u>Project Name</u>	<u>Qty (m2)</u>	<u>Location</u>	<u>Year</u>
ABV Rock Group Sites	60,000	Kindom Wide	2001-05
Aramco Evaporation Pond	14,000	Al Hassa	1991
Al-Khaldiah Farm	25,000	Riyadh	2005/06
Sunset Beach Resort	50,000	Al Khobar	1998/99
Al-Marai Pond Lining	5,000	Riyadh	1997
Oasis Golf Course Lakes	3,000	Dammam	2001
Abu Dhabi National Oil Co.	35,000	UAE	2001

Project Name : **King Fahad Stadium**

Qty (m2) : **10,000**

Location : **Riyadh**

Year : **2001**



Project Name : **National Guard Evaporation Ponds**

Qty (m2) : **43,000**

Location : **Al Hassa**

Year : **2001**



Since 1985

Project Name : **Sunset Beach**

Qty (m2) : **50,000**

Location : **Al'Khubar**

Year : **1999**



Project Name : **Arizona Ranch Resort-Golf Coarse**

Qty (m2) : **7000**

Location : **Riyadh**

Year : **1998**

