



# Aquaculture Lining Systems

*The world relies on Infabsol Geomembranes*

## Industrial Fabric Solutions Geomembranes Improve Your Profit Margins

Ponds and tanks used for fish and shrimp farming can be greatly improved by the use of highly impermeable, durable, lining systems. Infabsol geomembranes offer significant operation and cost benefits over soil, clay, concrete and steel in aquaculture applications. These benefits include:

- ◆ Enhanced water quality control
- ◆ Easy repair
- ◆ Erosion protection
- ◆ Low installation and maintenance cost
- ◆ Smooth harvesting surface
- ◆ Minimised pumping costs
- ◆ Consistent pond volume control
- ◆ Rapid installation
- ◆ Long life
- ◆ Secure water containment.

Infabsol is one of the world's largest manufacturer and installers of geomembrane lining systems and has extensive experience supplying liners for aquaculture facilities.

## Containment

As clean water becomes more expensive to acquire and the cost to pump water increases, the need for secure water containment grows. Efficient operation of any aquaculture facility requires consistent water volumes, high water quality and low operating costs. Additionally, the siting of aquaculture facilities like other food producing facilities, has become more difficult as concern continues to increase for clean surface water and groundwater resources.

Installing a Infabsol geomembrane is the solution. Infabsol geomembranes not only have extremely low permeability rates to help keep pond water volume consistent, they also keep waste product contained and prevent the intrusion of groundwater borne pollutants from entering aquaculture ponds. Dissolved oxygen levels are easier to maintain because the extraneous biomass of the pond is greatly reduced by the geomembrane barrier.

Infabsol Aquaculture Lining Systems:

1. Ensure superior water quality
2. Speed harvest and turnaround
3. Reduce the risks of disease
4. Offer the most durable containment at the most economical cost
5. Reduce your operating costs

## Water Quality Control

Infabsol geomembranes are certified for drinking water containment. These high quality geomembrane liners contain no additives or chemicals which can leach out and impact water quality or harm animal life. Infabsol geomembranes can be repeatedly cleaned and disinfected with no decrease in the liner's performance. The result is improved water quality allowing for higher and healthier crops due to greater dissolved oxygen levels and improved feed conversions. This produces better tasting product and improves profit potential.

## Erosion Control

Effective erosion control is another significant advantage of a Infabsol lining system. The liner eliminates slope deterioration caused by surface rains, wave action and wind. By eliminating erosion, the liner prevents eroded materials from filling the pond and reducing the pond volume, thus maintaining the original pond capacity.

In addition, costly erosion repair and dredging are eliminated. Finally, a Infabsol liner ensures complete harvests by maintaining a smooth pond bottom and by preventing muck and eroded areas where fish and shrimp can hide.

## **Disease and Microbiological Control**

While diseases cannot be eliminated, lined ponds reduce their occurrence and assure rapid and more dependable recovery because the liner can be cleaned, disinfected and returned to service within days. Infabsol geomembranes are resistant to microbiological attack and growth. The surface cleans easily and thoroughly. A Infabsol geomembrane gives you better control over your operations and therefore reduces the risks of aquaculture rearing.

## **Crop Quality**

With more consistent, better quality water, your aquaculture product grows more quickly, is healthier and tastes better. A Infabsol liner reduces sediment and results in a cleaner product. Your overall operation is more efficient and produces a better quality product.

## **The Liner System**

Made from the highest quality polyethylene, PVC and rubber resins, Infabsol geomembranes boast exceptional tensile strength, puncture resistance, durability and longevity. They have outstanding thermal and dimensional stability and are highly resistant to UV exposure, tearing, cracking, punctures, extreme temperatures and water absorption. Each liner system is installed by trained installers using state-of-the-art welding equipment to ensure a long-term containment system for your valuable aquaculture product.

## **What to Do**

Send plans, dimensions, and requirements to Infabsol. We will provide you with recommendations, an estimate for material and installation, contracts for local installers, (if desired), and references. For solutions to your aquaculture needs ... come to Infabsol.



# Canal Lining Applications

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## The Problem

As clean water becomes more expensive to acquire, the need for secure water containment grows. Over time, concrete-lined canals may crack resulting in a significant loss of water. Earthen canals are also subject to erosion and leakage problems due to stress cracking from changing weather conditions.

## The Solution

Infabsol geomembranes provide an effective and economical solution to canal leakage and erosion problems. For more than 40 years, membrane canal liners have proven effective. Infabsol geomembranes offer state-of-the-art performance for canal lining projects. Infabsol geomembranes and geomembrane lined canals exhibit:

- ◆ Reduced maintenance
- ◆ Long-term durability
- ◆ Flexibility
- ◆ Puncture resistance
- ◆ Large roll widths and lengths
- ◆ UV stability
- ◆ Low temperature flexibility
- ◆ Welded seams
- ◆ Flow improvement.

## Covered or Uncovered

Infabsol's geomembrane canal liners may be left un-covered (exposed) or may be protected with a covering of soil or concrete. Infabsol's UV-stabilised geomembranes can remain exposed for an extended length of time with no expected decline in their level of performance. However, most canal lining systems should be protected against damage from rocks, debris, equipment and vandalism.

## Repair of Existing Canals

Infabsol geomembranes are suitable for lining over cracked concrete canal linings. Sections of the canal can be repaired at different times if the budget does not allow for a complete relining at one time.

## What to Do

Send plans, dimensions, and requirements to Infabsol. We will provide you with recommendations, an estimate for material and installation and contacts for local installers, if desired.

For the quality, consistency, product range and service you need and expect, come to the liquid solutions company - Infabsol (Pacific) Pty Ltd.





# Fabrication Services

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## The Advantages of Prefabrication

Field fabrication consumes large amounts of time which translates into higher installation costs. Whether prefabricating pipe boots, baffle walls, vertical membrane barrier panels, or containment pads, utilisation of prefabricated products can reduce the installation time and costs.

Regardless of what your application may be, the quality and ease of installation and time savings that Infabsol Fabrication Services provide can result in substantial cost reductions for your project.

## Experience

Infabsol Fabrication Services have provided thousands of fabricated geomembrane products and components to contain or assist in the installation of fluid containment and lining systems. Infabsol fabricated products have been successfully employed throughout the world.

## Examples of Geomembrane/Liner Fabricated Products

- ◆ Self-Installed Pond and Pit Liners
- ◆ Tank Liner for Prefabricated Tanks
- ◆ Floating Booms and Baffle Curtains
- ◆ Pipe Boots
- ◆ Portable Secondary Containment
- ◆ Temporary or Daily Landfill Covers
- ◆ Temporary and Permanent Contamination Liners

## Infabsol Custom Fabrication Services

Infabsol is dedicated to the fabrications business with full-time sales and operations staff to support your speciality fabrication needs. Infabsol's fabrication staff can provide the expert assistance necessary for quality completion of your fabrication needs. Infabsol provides cost effective solutions for many applications including:

- ◆ Aquaculture
- ◆ Agricultural
- ◆ Petrochemical
- ◆ Utility
- ◆ Golf Courses
- ◆ Landfill
- ◆ Wastewater
- ◆ Mining
- ◆ Beef, Swine and Poultry Production and Processing

Infabsol Fabrication Services is capable of consistently fabricating high quality products in our factory controlled environment. Our trained operations staff possess the experience and knowledge needed to provide quality and innovation for each fabrication need.

## **Secure Temporary Containment**

Many industrial activities involve the use or transfer of potentially environmentally damaging chemicals and liquids; leaks and spills are typical occurrences. Why rely on a cleanup strategy when you can prevent these pollutants from contacting soil or groundwater?

### **Primary and Secondary Containment Systems**

Infabsol's geomembranes are for temporary applications and can be fabricated into large scale liner pads up to one acre. Liner pads are typically folded and rolled on to a pipe core and shipped on a pallet to the job site. Utilising prefabricated liner pads eliminates costly field welding.

**STANDARD BOOTS** are designed to slip over existing pipe penetrations in the field. Infabsol's geomembrane material used in the fabrication of boots can be specified equal in thickness and material type to the deployed sheet. Infabsol can prefabricate boot sizes to suit any diameter pipe with a slope angle varying from vertical to 6:1.

**BOOMS and BAFFLE WALLS** are fabricated to contain or direct the flow of liquids. They can be fabricated as single piece systems or in sections for ease of field installation. Infabsol Fabrication Services can assist with detailed drawings on our booms and baffle systems.



# Tank Lining Applications

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## Secure Containment and Leak Detection Lining Systems

For primary tank linings, secondary containment, leak detection systems, Infabsol products meet a wide range of tank application needs. Thousands of industrial and municipal users have relied on Infabsol materials, technology and services in vital applications such as the secure segregation of chemical media, corrosion proofing of concrete, steel and other surfaces. With over 25 years of manufacturing and installation experience, Infabsol can provide you with superior quality and service. Infabsol offers a quality range of products to facilitate tank lining projects, including:

- ◆ LLDPE, PVC, Butyl Rubber and HDPE etc
- ◆ Cast-in place geomembrane attachment extrusions
- ◆ Cast-in place concrete protective liner systems
- ◆ Factory-controlled prefabricated pipe intrusion boots, sumps and connections.

Infabsol's geomembranes are:

- ◆ Resistant to most hazardous liquids
- ◆ Cost effective
- ◆ Certified for potable water storage
- ◆ UV-resistant for exposed applications
- ◆ Rugged and durable.

## Primary Tank Liners

Infabsol geomembranes have been installed inside steel and concrete tanks of all dimensions to preserve aging tanks and to protect the tank walls from corrosion. In potable water applications, the geomembrane assures that no groundwater-based contaminants or deteriorating structural containment sediment enters the reservoir. A floating cover or fixed-roof cover can likewise keep unwanted material out of the containment or help confine vapours emitted by the contained liquid. Infabsol geomembranes can be attached to steel tank walls using bolted stainless steel battens or PVC strips. Geomembrane can also be attached to concrete foundations using bolted stainless steel batten strips or more economically using Infabsol's

poly stripping attachment strips. The strips are attached to the concrete using anchors. The geomembrane can be securely attached to the poly strip to form a continuous attachment.

Thousands of industrial and municipal users have relied on Infabsol materials, technology and services in vital applications.

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## Enhanced Linings

Infabsol's geomembranes offer other significant benefits over traditional lining systems. A Infabsol liner system can be thoroughly tested once installed. And for exposed applications, the clean geomembrane can be tested periodically as part of a maintenance program to ensure that no post installation damage has occurred. Infabsol geomembranes offer a level of assurance not possible with other tank lining products.

Infabsol offers complete turnkey supply and installation with single source responsibility.

## Leak Detection

Infabsol geomembrane liners are typically utilised for leak detection systems inside the ringwall or retrofit. The liner contains and channels leaked liquids to a leak detection sump.

## Secondary Containment

From small tanks to entire tank farms, the secondary containment area is a critical component of tank lining protection. Infabsol geomembranes have been proven in hundreds of secondary containment applications.

Infabsol's trained installation technicians have extensive experience working with pre-existing and complicated tank farm systems.

Infabsol geomembrane lining systems are routinely utilised to provide corrosion protection for concrete and steel surfaces. Infabsol method for corrosion-proofing involves attaching standard geomembrane sheeting to the concrete surface using batten strips or the PVC stripping.

## **Service and Support**

Infabsol provides complete service and support for your project's lining installation. Detail drawings can be provided as well as extensive technical and estimating support to help guide your design to the most economical and constructable configuration that meets the particular project requirements. This total project capability reflects our experience and knowledge of the synthetic lining industry and our commitment to the needs of the customer. No other company offers the wide range of quality products, the level of quality assurance, or can match the installation and safety track record that Infabsol offers you.

Another example of Infabsol's commitment to quality.



# Mining Applications

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## Geomembrane/Lining Systems

Today's mining practices require optimal performance from containment lining systems. Infabsol manufactures and installs the highest quality, most durable and long-lasting flexible geomembrane lining systems for specialised mining needs. Infabsol's wide range of geotechnical products are manufactured from a variety of fabrics used in demanding geotechnical applications. Infabsol's unique, very flexible liner/geomembrane called *Skyliner*, was created by Infabsol to meet the explicit needs of the mining industry by providing outstanding puncture and chemical resistance in addition to multiaxial performance.

Infabsol's materials used for geomembranes are available in thicknesses from 1.0mm to 6.00mm and seamless widths from 6.9 metres to 10.5 metres, depending on the type of fabric. Such wide-width panels mean fewer field seams, faster, more efficient installations and less opportunity for leakage. With millions of square metres installed at mining operations around the world, you can be assured that Infabsol's geomembranes will meet your needs.

## Solutions Ponds

Pond liners are typically exposed to the harsh elements and constant use. Annual leak testing is not uncommon to minimise solution loss. To minimise leak testing costs and maximise assurance, use Infabsol's system of field spark-testing geomembranes which can be economically tested in place, when clean, dry and exposed, year after year, ensuring complete capture of valuable solutions.

## Process and Waste Water Tanks

Infabsol offers unique products for lining settling tanks and other structures. Infabsol's LLDPE, PVC or Butyl rubber fabric sheet is installed into newly poured concrete tanks. Another effective method for lining concrete structures is with Infabsol's standard geomembranes which can be attached to concrete tanks using PVC, LLDPE, Butyl Rubber and HDPE. These fabrics are positioned in the concrete tanks. The geomembranes can then be fitted with extrusion strips that are mounted to the internal walls with chemical anchors.

Infabsol uses the highest quality high density liners that are very flexible.

## Corrosion Protection

Infabsol geomembranes are used to line settlement tanks, sumps, trenches, etc, to prevent weathering and corrosion. Infabsol liners, used for corrosion protection for concrete structures, are a very economical replacement for stainless steel tanks.

## Advantage of Business Partnerships with Infabsol

- ◆ Infabsol provides clear assurance of system integrity from one supplier, Infabsol's single-source responsibility, for not only the flexible geomembrane liner but all components of the liner system, provides for economic and reliable construction.

## Benefits of a Infabsol Lining System

- ◆ Confidence that Infabsol has the experience, knowledge and capacity to handle the most complex and difficult lining applications.
- ◆ Quality assurance of supply and quality installation anywhere in the world.
- ◆ Assistance from Infabsol project specialists with experience in all aspects of lining materials and geomembrane design to meet the most stringent environmental requirements.
- ◆ Wide selection of geomembrane materials including HDPE, Butyl Rubber, PVC and LLDPE for design flexibility and single source convenience.
- ◆ Infabsol's geomembranes offer the best dimensional stability and resistance to environmental stress cracking, and provide stronger weld strength than all other competitive fabricators.
- ◆ Infabsol's liners are very flexible offering outstanding puncture and chemical resistance for mining applications.
- ◆ Efficient, high quality, turn-key installation.
- ◆ Fusion and extrusion welding processes that produce a homogeneous installation seam with superior strength.
- ◆ Global distribution and manufacturing network.

