

Geotextile Tubes

- de-watering
- coastal protection

Description

High Strength geotextiles are manufactured into tubes for a range of applications including de-watering, artificial reefs, wetland reclamation and shoreline protection.

Applications

• De-watering

For de-watering applications geotextile tubes are filled with various materials including dredged wastes, contaminated soils, fine sludge and other hazardous wastes. The tube then acts as a huge filter and begins the process of de-watering. The woven yarns in the material slowly drain and retain contaminants. The final stage is consolidation of the waste which can be removed for disposal. The filtered water is often of a high enough quality as to be returned to the source without further treatment.

Permathene manufactures geotextile tubes strong enough to resist breaking under load. A successful project will retain the contaminants and allow a high filtration rate with maximum consolidation. Our engineers can assist you in determining the type of contaminants and whether additives are needed to coagulate the waste. The whole process, once the tubes are setup and de-watering begins, is very straight forward with minimal costs. For very fine grain sludge further filtration can be achieved using both an inner and outer tube. The inner tube is a heavy grade nonwoven geotextile which is designed for retention of fines and the outer tube is a high strength woven polypropylene or polyester for strength.



de-watering contaminated pond

• De-watering of industrial wastes

Industrial waste from industries such as timber, mining, chemical, etc. geotextile tubes are a cost effective and environmentally friendly solution when compared to traditional methods of de-watering and disposing of solid waste. Contaminated sediments from collection ponds and creeks which have been polluted by industry, sewage overflow and storm water runoff can be successfully de-watered using geotextile tubes.

Where a flocculating agent is used tests have indicated reduction of such contaminants as dioxin, lead, arsenic, etc. with a containment efficiency of over 99.8%.

• De-watering of lagoon sediments

A typical de-watering operation for a municipal sludge pond or lagoon allows for the continual filling of tubes with each tube taking approximately one hour to completely fill. The tube will typically rest in the



de-watering of industrial wastes

de-watering trough and allow to solidify for a period from 1 to 3 months depending upon the type of material. Generally a reduction of more than 60% is achieved during this phase. The water which flows out is often suitable to be returned to the pond without further treatment with significant reductions in bacteria.



- **De-watering of agricultural wastes**

Geotextile tubes have proven to be a practical and cost effective solution to providing a method of de-watering and separating agricultural wastes. When left untreated or stored in ponds these wastes can create pollution to our rivers and lakes.

The geotextile tube will effectively remove nutrients and separate solids from agricultural wastes. Once de-watered the solidified solids, including dried nutrients, can be used as fertiliser.

- **De-watering of marine sediments**

Geotextile tubes are an environmentally friendly method to remove sediments from canals and marinas which have become silted up reducing depth. These are hydraulically filled from barges or along the wharf.

- **Marine Structures and Coastline Protection**

Geotextile tubes are designed and manufactured to be fully submerged in a marine environment. This includes their use as breakwaters and artificial reefs. For these extremely demanding environments, survivability of the material is essential. The tube needs to be fully UV resistant with a high resistance to abrasion and tear. For these applications we can provide a series of tubes in layers which can be filled with dredged materials underwater with care taken during filling to ensure the structure does not move due to wave action.

Geotextile tube containers are made to protect coastline and help prevent beach erosion. These tubes can be made in small units built as a wall against the impending forces of erosion. Ranging in size from 1 m to over 5 m high these high strength geotextiles offer maximum resistance to tear, abrasion and UV. Also available but less resistant to mechanical damage are economical heavy grade nonwovens. These nonwovens can provide a means for fast marine growth due to the porous nature of the material.

Manufacture

Geotextile tubes are manufactured in our Auckland, New Zealand factory to any size.



Permathene Ltd (New Zealand)
404 Rosebank Rd, Avondale, Auckland
(PO Box 71015 Rosebank)
Tel: (09) 968 8888

www.permathene.co.nz

Permathene Pty Ltd (Australia)
8/ 20 Ricketty St, Mascot, NSW 2020
(PO Box 6389, Alexandria 2015)
Tel: (02) 8338 8879

www.permathene.com.au