

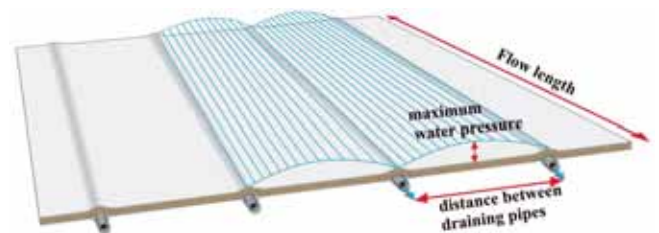
# AFITEX-TEXEL

The drainage you want

## Geoelectrical leak detection and location applications

### ***Draintube®* The First Conductive Drainage Geocomposite**

QA/QC on geomembranes usually involves geoelectrical leak detection. These techniques are well known in the field of geosynthetics and currently are covered by various ASTM standards <sup>(1)</sup>.



Geoelectrical leak detection methods are based on the ability of an electrical field to pass through a hole in a geomembrane and thus detect it.

Basically there are two different methods to detect a leak in a geomembrane.

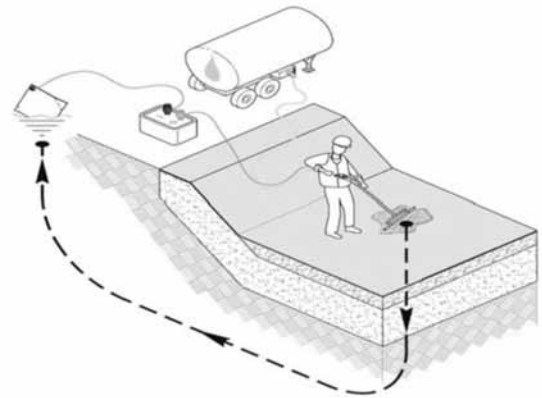
(1) ASTM D6747 Standard Guide for Selection of Techniques for Electrical Detection of Potential Leak Paths in Geomembranes. ASTM D7002 Standard Practice for Leak Location on Exposed Geomembrane Using the Water Puddle System. ASTM D7007 Standard Practices for Electrical Methods for Locating Leaks in Geomembranes Covered with Water or Earth Materials.

# Geoelectrical Leak Detection What works and what doesn't!

## Locating Leaks on exposed geomembranes

### If the geomembrane is exposed – Water Jet method

While the geomembrane is still exposed during installation, engineers can control the quality of the work of the installation team. The method that is used in this case is known as the water jet or electrical brush method.



The goal is to insure that current does not pass from the ground to the top of the geomembrane through a potential hole. Water increases conductivity and allows contact between the top of the geomembrane and the ground below. The geomembrane must be placed on a conductive layer (geotextile, soil) otherwise contact is broken and the current stops.

With geonets and geonet composites, the air gap inherent to their structure is an electrical insulator. That air gap makes it impossible for the water jet method to work properly.

**Draintube®**, because it is electrically conductive, allows the current to pass from the ground to the top of the geomembrane. **Draintube®** technology makes leak detection possible, just like a gravel layer. Repairs can then be made prior to backfilling.

## Gravel Drainage Layer

On exposed GM1

✓ OK



On exposed GM2

✓ OK



## Draintube® Drainage Composite

On exposed GM1

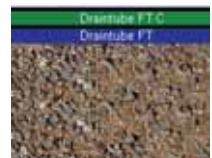
✓ OK



On exposed GM2

✓ OK

Use **Draintube FT C**



## Standard Geonet or Geonet Composite

On exposed GM1

✗ No

Need an additional  
conductive geotextile



On exposed GM2

✗ No

Need an additional  
conductive geotextile



# Geoelectrical Leak Detection What works and what doesn't!

## Locating Leaks on covered geomembranes

### If the geomembrane is covered – Dipole method

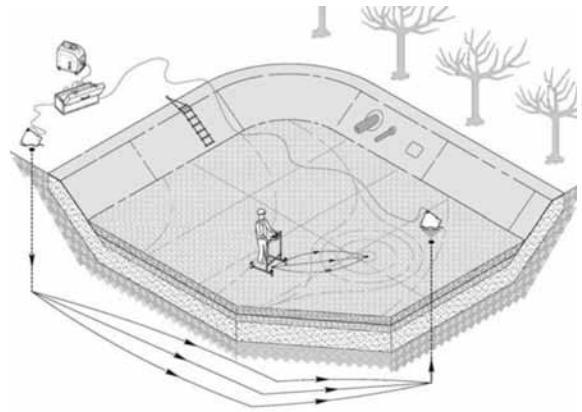
When the geomembrane is covered with backfill, engineers must verify that the backfill has been properly installed without damage to the geomembrane.

In this case the dipole method is used

Using the dipole method, a continuous electrical field is created around the site and readings are taken throughout the test area. A significant change in values indicates the location of a leak in the geomembrane.

As with the first method, the geomembrane must be placed on a conductive layer (geotextile or soil). Geonets or geonet composites do not allow the dipole method to work properly, and on a covered geomembrane, if a geonet or geonet composite is placed between the geomembrane and the backfill, it is impossible to perform the test.

With **Draintube®** technology, the dipole method of leak location works normally.



## Gravel Drainage Layer

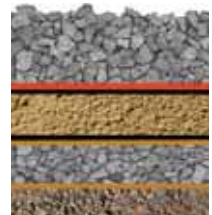
On covered GM1

✓ OK



On covered GM2

✓ OK



## Draintube® Drainage Composite

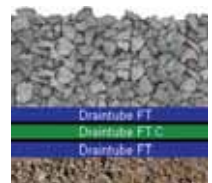
On covered GM1

✓ OK



On covered GM2

✓ OK



## Standard Geonet or Geonet Composite

On covered GM1

✗ No  
Need an additional  
conductive geotextile



On covered GM2

✗ No  
Never possible



# AFITEX-TEXEL

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