TENCATE Geotube®

FYI
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Geotube® Marine Technology Provides Expanded Benefits with Versatile Polyurea Coatings

Multiple advantages are visible in several shoreline restoration projects.

Geotube® marine technology has protected shorelines, rebuilt beaches, and reclaimed land from oceans for more than 45 years. Geotube® containment technology is a proven, cost-effective method for a variety of shoreline protection and marine construction applications.

TenCate™, manufacturer of Geotube® materials, develops and produces materials that function to increase performance, reduce cost, and deliver measurable results by working with our customers to provide advanced solutions.

The company is dedicated to continued innovation and product offerings. **Polyurea coating** is one of the latest additions to the Geotube® system. It offers a protective shell and bonds well to the geotextile material of the Geotube® containers.

Background Prospective

Geotube® containers used in the construction of sand-covered marine structures have the potential to be exposed during major storm events that are capable of removing the original sand covering. If this occurs, the Geotube® containers can be subjected to abrasion or puncture from floating debris, ultraviolet (UV) light degradation, and vandals during the time that the units are exposed until the sand covering is replaced.

New Feature: Polyurea Coating

To address this inherent possibility, TenCate™ incorporated the use of an innovative polyurea coating in their shoreline restoration efforts. This coating is used in conjunction with Geotube® containers to develop durability and offer added protection for applicable sand-covered marine structure projects.

Multiple Geotube® installation sites have utilized the sand-colored polyurea coating. The advanced coating offers strength, longevity, and durability — as well as an aesthetically pleasing appearance on the beach.

"This hard polyurea coating creates a turtle shell type of protective layer for the Geotube® units as it is applied to the upper surface of the geotextile," said Mark Gunzenhauser, Vice President Sales, TenCate™ Industrial Fabrics. "It provides needed protection in a shoreline environment that is faced with threats of flooding, erosion, and hurricanes."

Polyurea is a two-component, spray-applied chemical coating. It dries in seconds to provide a tough chemical and abrasion-resistant finish. This is a very fast reaction, proceeding to completion without any catalysts. Typically, the working times (i.e., gel times) are less than one minute. This fast reaction, of course, requires a fast, efficient mixing technique so that the resin mixture can be applied within the short gel times. Impingement mixing from two-component spray machinery is efficient and entirely adequate.

TenCate™ offers two application methods for this coating. The polyurea can be sprayed onto the sewn Geotube® units at the factory; or it can be applied in the field after the containers are installed on the shoreline.

Multiple Advantages of Polyurea Coating

"Our polyurea coating addresses many issues present in a marine environment, said Alan Juncker, TenCate™ Market Manager. "Its many advantages immediately enhance the use of Geotube® technology for shoreline projects."

- Fast cure. May walk on surface within 1 minute.
- Excellent adhesion to the Geotube® fabric.
- 100% solids, no VOC, and low odor.
- Seamless application
- Waterproof
- Resistant to many chemicals
- Resistant to ultraviolet light
- Abrasion resistant
- Puncture resistant
- Weather resistant
- Resistant to deterioration
- Large selection of custom colors available.
- Aesthetically pleasing appearance

(More)

Two Application Methods Are Used

Sprayed in the factory (left), and in the field after Geotube® units are installed.

Two Coating Forms Available

The polyurea coating is available in two forms:

(1) Sprayable Aliphatic Polyurea Coating is a two-component system that has typical working (gel) times of less than one minute. Its color resists yellowing from UV light exposure.

(2) Sprayable Aromatic Polyurea Coating is a two-component system that has typical working (gel) times of less than 30 seconds. This coating form will fade if exposed to UV light long term.

For More Information

A TenCate™ representative can recommend the best use of Geotube® marine technology for your situation. To learn more about Geotube® technology, call 1-888-795-0808 or visit www.geotube.com.

Grand Isle, Louisiana Shoreline Protection Project [Summer 2009]

Nearly six miles of polyurea-coated Geotube® units were installed to form a protective barrier, reduce erosion, and renourish storm-damaged beaches along the Gulf Coast of Southern Jefferson Parish. This was part of the Army Corps of Engineers' rehabilitation project following damage by Hurricanes Gustav and Ike.

This installation used two of Geotube® 's unique product features: patent-pending flat ends design and sand-colored polyurea coating *(top right photo).* Sand-filled Geotube® units (30-ft. circ., 5.5-ft. tall) and scour aprons formed the sand dune core *(bottom right photo).* The filled units were covered with a 3-ft. sand layer to create the profile of the natural sand dune *(bottom left photo).* This 7-month Geotube® installation was completed in December 2009. Dune grass will be planted later to re-vegetate the sand dune.

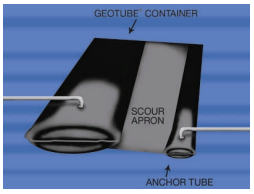
How Geotube® Marine Containment Structure Technology Works

Building a marine containment structure with Geotube® technology is a three-step process.

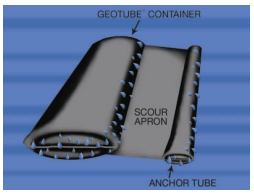
In the ***filling*** stage, the Geotube® container is filled with dredged sand or similar materials. The Geotube® containers are constructed of a unique fabric, specially engineered for a marine structure.

In the ***containment*** stage, the durable and high-retention fabric allows the dredged materials to fall out of suspension and form a dense monolithic structure.

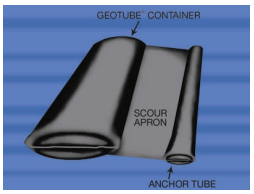
In the final stage, ***structural***, the contained and densified material serves as a structural mass. When utilized with an accompanying Scour Apron, the Geotube® container may be utilized as a sand dune core or other shoreline re-nourishment or erosion-prevention medium.



Step 1: Filling



Step 2: Containment



Step 3: Structural

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