

# ENGINEERING BULLETIN

## HANDLING AND STORAGE OF GEOTEXTILES AND ROLLED EROSION CONTROL PRODUCTS (RECPs)

### BACKGROUND

Geosynthetics are tough, durable products, which provide cost effective solutions to a wide variety of civil engineering construction problems. As with any construction material, geotextiles and rolled erosion control products (RECP's) must be handled and stored properly to assure that the specified physical properties are retained to serve project needs. This engineering bulletin provides guidance for protecting geosynthetics during on-site handling and storage

The objective of geosynthetic handling and storage is to safely transport and store the rolls at the project site without damaging the material or the core it is wound upon, or unduly exposing it to ultraviolet (UV) light, moisture or other contamination. The ASTM has published an industry standard titled "Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples" (ASTM D4873). Propex recommends the guidelines published in this standard be followed for the handling and storage of Propex geotextiles and RECP's. The following additional recommendations supplement the ASTM guidelines.

### UNLOADING

A forklift or front-end loader fitted with a long, tapered pole is recommended for unloading geosynthetic rolls. The pole, shown in Figure 1, is often referred to as a "carpet pole" or "stinger". The carpet pole is inserted into the roll core and the roll is lifted off of the truck bed. The pole should be long enough to extend at least 2/3 of the way into the geosynthetic roll core to avoid the possibility of breaking or damaging the roll core.

Geotextile and RECP rolls may also be lifted from flatbed trailers using nylon straps or rope and a crane, backhoe, or bulldozer. No more than three geosynthetic rolls should be lifted at a time. Exceeding this number may cause damage to the roll core and hamper geosynthetic deployment. Chains and cables should not be used to lift rolls. Do not drag the rolls off the truck or drop them on end since damage may result. If rolls do not contain a core (Turf Reinforcement Mats), use a standard forklift or 2 people to handle them.

If a suitable carpet pole is not available, a roll puller, nylon strap, or rope can be used to unload geosynthetic rolls from an enclosed trailer. Care must be exercised when using these procedures to avoid damaging the material or "telescoping" the rolls. Roll pullers are devices that are inserted into the roll core and attached via a chain or strap to a loader, bulldozer, or other vehicle. As the vehicle pulls, the roll puller expands against the inside of the roll core and drags the roll to the edge of the truck bed and lowers it down to the ground surface. Nylon straps or ropes may also be wrapped around the geotextile roll using a slipknot. Again the roll is dragged to the edge of the truck and lowered down to the ground surface. A tarpaulin, sheet of plastic, or fabric should be placed on the ground where the geosynthetic rolls are to be unloaded. Most geosynthetics are not fabricated to withstand the force of the core being pulled, so care must be exercised to avoid "telescoping" of the rolls

### SITE HANDLING

Rolls of geotextile should always be lifted off of the ground surface prior to moving. Dragging the geotextile and operating equipment on the geotextile should be avoided at all times. Not only is physical damage of concern, but the geotextile might also become contaminated with dirt and other materials. Such contamination can significantly reduce the geotextile's ability to perform its intended function in some applications.

### STORAGE

Geosynthetic factory wrapping should be maintained as long as possible. Store geosynthetic rolls elevated above the ground and ensure that they are adequately supported and covered to protect from:

- Precipitation;
- Ultraviolet radiation, including sunlight;
- Chemicals, especially strong acids and strong bases;
- Flames, including welding sparks;
- Temperatures in excess of 71°C (160°F); and
- Any other environmental condition that may damage the physical properties of the geosynthetic.

If stored outdoors and not protected with a waterproof cover, the factory wrapping should not be left exposed for more than 30 days. If the product inadvertently exceeds recommended exposure period, the outermost layer of the geosynthetic must be removed and discarded before installation or testing. If stored outdoors, the geotextile should be elevated from the ground surface and covered with a tarpaulin or opaque plastic as shown in Figure 2.

In most cases, damage to a roll of geosynthetic is limited to the protective wrapping. If the wrapping is damaged, proper storage of the geotextile is particularly critical. The rolls must be elevated off of the ground surface and securely covered with a tarpaulin or opaque plastic. If the outer layer of the geotextile itself is damaged, it is permissible during installation to remove the outermost wraps of the roll and discard the damaged material. The remaining undamaged material is suitable for construction. Removing the outermost wrap of geotextile is also acceptable when a roll is exposed to sunlight for a time period beyond that permitted by the project specifications. The remaining unexposed material is suitable for construction.

#### EXPOSURE OF GEOTEXTILES

Acceptable limits of exposure depend upon site-specific environmental conditions (temperature, latitude, time of year, moisture, wind, orientation, etc.). However, it is not recommended that geotextiles be left unrolled without protective cover for more than 14 days. If the exposure period is expected to exceed 14 days, a sacrificial layer of geotextile, must be installed to reduce exposure to ultraviolet rays. Please note that this restriction does not apply to rolled erosion control products. For more information on the effects of ultraviolet (sunlight) exposure, please refer to the Engineering Bulletin specifically addressing that issue.

#### REPAIR

Holes or tears in rolled geosynthetics should be repaired immediately. Material that has penetrated or torn the product should be removed. A patch should be placed over the damaged area and extend 3 feet (900 mm) beyond the perimeter of the damaged area. The patch should be seamed in the same manner as adjacent roll ends on the rest of the project.

#### REFERENCES

ASTM D 4873, "Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples," Annual Book of ASTM Standards, Vol. 4.13, ASTM International, West Conshohocken, PA, 2006, pp. 77-78.

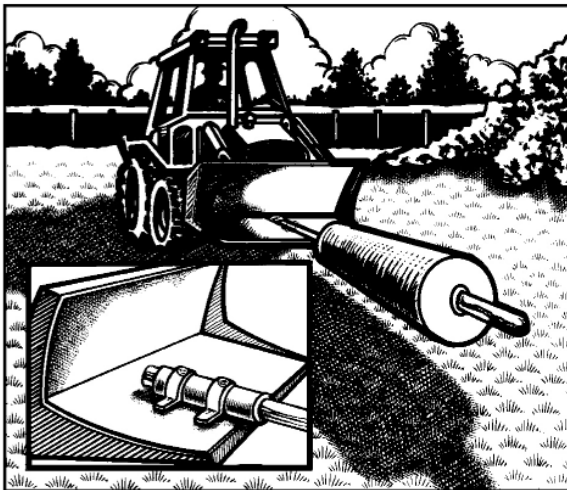


FIGURE 1



FIGURE 2



6025 Lee Highway, Suite 425  
PO Box 22788  
Chattanooga, TN 37422

PH: 423 899 0444  
PH: 800 621 1273  
FAX: 423 899 7619

[www.geotextile.com](http://www.geotextile.com)

Geotex®, Landlok®, Pyramat®, X3®, SuperGro®, Petromat® and Petrotac® are registered trademarks of Propex Inc.

THIS PUBLICATION SHOULD NOT BE CONSTRUED AS ENGINEERING ADVICE. WHILE INFORMATION CONTAINED IN THIS PUBLICATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE, PROPEX DOES NOT WARRANT ITS ACCURACY OR COMPLETENESS. THE ULTIMATE CUSTOMER AND USER OF THE PRODUCTS SHOULD ASSUME SOLE RESPONSIBILITY FOR THE FINAL DETERMINATION OF THE SUITABILITY OF THE INFORMATION AND THE PRODUCTS FOR THE CONTEMPLATED AND ACTUAL USE. THE ONLY WARRANTY MADE BY PROPEX FOR ITS PRODUCTS IS SET FORTH IN OUR PRODUCT DATA SHEETS FOR THE PRODUCT, OR SUCH OTHER WRITTEN WARRANTY AS MAY BE AGREED BY PROPEX AND INDIVIDUAL CUSTOMERS. PROPEX SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM PROVISION OF SAMPLES, A COURSE OF DEALING OR USAGE OF TRADE.

EB-602 © 2006 Propex Inc. 08/06