BASIC CONCEPTS INC
Justrite Safety Group

Geomembrane Liner System with Barrier Boom

Product Images

Short Description

- Solidifies approximately a half gallon of oil per ft2 depending on type of oil, viscosity, and temperature
- Evacuates rain water and run-off without valves, pumps, sumps or oil-water separators
- Below-grade systems reduce the risk of transformer fires
- Cost-effective solution for secondary spill containment
- Capacity - Water flow rate: Minimum 4 GPM per ft2 of material with one foot head pressure
- Compliance - SPCC 40 CFR 112.7 and IEEE Std. 980

Description

A geomembrane liner system with barrier boom offers substations a powerful secondary containment solution for passive oil containment, environmental protection, and regulatory compliance. Designed for operational efficiency and long-term performance, this system combines the strength of geomembrane containment with advanced hydrocarbon filtration, making it ideal for high-risk environments such as substations.

Key Applications of Geomembrane Liner Systems for Substations

Geomembrane Liner with Barrier Boom is a highly effective solution for secondary containment in substation environments, particularly for managing transformer oil spills. This system combines a durable geomembrane liner with a patented barrier boom technology, providing reliable protection against hydrocarbon leaks while ensuring compliance with environmental regulations.

Use Case Scenarios

- Utility substations in flood-prone zones: Prevent oil migration into groundwater during storm events.
- Remote substations: Reduce maintenance needs with passive containment that doesn't require constant monitoring.
- Environmentally sensitive areas: Ensure only clean water is discharged into nearby water bodies.
- Sites with sandy or undetermined subsoils: Provide engineered containment even in unstable ground conditions.

How Barrier Boom Technology Enhances Containment

One of the standout features of this system is its passive containment capability. The Barrier Boom technology is self-activating, allowing stormwater to flow through while capturing hydrocarbons. This ensures that only clean water is released into the environment without the need for manual intervention. Additionally, the system meets and exceeds SPCC (40 CFR 112.7) and IEEE 980 requirements, providing regulatory compliance for substation transformers. Installation is quick and efficient, typically taking one to two days without requiring equipment to be de-energized, making it a practical choice for operational facilities.

Water Management in Geomembrane Containment Systems

Proper water management is essential for maintaining the integrity of geomembrane-based secondary containment systems. Several methods can be used to evacuate water, including manual pumping, which can be labor-intensive, and sump pumps, which automate the process to reduce labor costs and ensure continuous operation. Solutions like automatic dewatering systems are ideal for vaults and manholes that demand constant water management. Some systems incorporate pump-thru barriers, which work alongside sump pumps to enable high-volume rainwater removal while still maintaining oil containment. These can be paired with dewatering and filtration systems to streamline compliance and performance. Another effective approach is designing the containment system with a slight incline to facilitate natural drainage, reducing

reliance on mechanical systems.

Why Geomembrane Liners Outperform Concrete in Containment Applications

When comparing geomembrane liners with concrete containment systems, several factors come into play. Geomembrane liners offer greater flexibility and adaptability, accommodating soil deformations and irregular terrain. They are also more cost-effective, with installation costs ranging from $0.50 to $2.50 per square foot, whereas concrete containment systems typically cost between $6.00 and $7.00 per square foot. Durability is another significant advantage, as geomembrane liners can last up to 30 years without cracking or leaking. Additionally, they exhibit excellent chemical resistance, making them suitable for harsh environments. However, proper installation is necessary to ensure their effectiveness.

Concrete containment systems, on the other hand, provide strong structural integrity, but when compared to the flexibility, cost-efficiency, and environmental benefits of geomembrane liners, they may not be the optimal choice for every containment scenario. They offer a stable working platform resistant to heavy equipment. With proper maintenance, they can last between 40 to 60 years. However, the high cost of installation and susceptibility to cracking and leaks can make them less desirable. In applications requiring added surface durability, the SC-3900 spray coating system can be used in tandem with geomembrane liners to enhance chemical resistance and extend lifespan. Furthermore, they require extensive subgrade preparation, which can add to the overall cost and complexity of implementation.

Geomembrane Liner with Barrier Boom presents a cost-effective, flexible, and environmentally friendly solution for secondary containment in substation environments. Its ability to manage water effectively while ensuring hydrocarbon containment makes it a superior alternative to traditional concrete containment systems. By adopting this solution, substations can enhance safety, regulatory compliance, and long-term cost savings.

FAQs

What is the primary function of a Geomembrane Liner with Barrier Boom?

This system provides engineered secondary containment for hydrocarbon filtration, particularly in sandy or undetermined subsoils. It allows stormwater to pass through while capturing hydrocarbons, ensuring only clean water is released. In the event of a spill, the Barrier Boom solidifies to prevent oil migration.

How long does it take to install a Geomembrane Liner with Barrier Boom system?

Installation typically takes one to two days and can be completed without powering down equipment, minimizing operational disruptions.

What materials are used in the Barrier Boom panels?

Barrier Boom panels are made from a patented blend of hydrophobic and oleophilic synthetic materials. They feature Agent-X geotextile layers that incorporate solidifying polymers to filter and contain oil spills.

Can vehicles drive over a Geomembrane Liner with Barrier Boom system?

Yes, if the system is properly engineered with protective measures such as six inches of pea stone below the liner and a geotextile fabric layer before backfill. However, direct driving over the berm without these precautions is not recommended, as it could cause damage.

What regulatory standards does the Geomembrane Liner with Barrier Boom comply with?

The system meets SPCC 40 CFR 112.7 and IEEE Std. 980, ensuring full compliance with environmental and safety regulations.

By choosing a Geomembrane Liner with Barrier Boom, substations can enhance safety, protect the environment, and achieve regulatory compliance while minimizing long-term maintenance and costs. For a broader range of secondary containment solutions, Basic Concepts offers systems tailored to meet the needs of substations, utilities, and industrial facilities.

Specifications

SKU	geomembrane-liner-w-barrier-boom
Brand	BCI