



**SECONDARY OIL
CONTAINMENT**



24/7 SPILL PROTECTION FOR TRANSFORMERS

#FABRICSCHANGINGINDUSTRY



TRAPS OIL, NOT WATER

SorbWebPlus™
Secondary Oil Containment System

EsterWeb™

**OILBLOCKER™
Plus**



Albarrie

WHO WE ARE

With over 40 years of innovation, ALBARRIE stands at the forefront of engineering nonwoven technical fabrics. Our Canadian roots are deep, with three production hubs in Barrie, Ontario, crafting custom non-woven fabric solutions for diverse applications. We offer a suite of services including engineering, design, and technical support.

The hallmark of our offering is the revolutionary secondary oil containment systems, featuring cutting-edge, self-sealing smart fabrics – a testament to our commitment to environmental protection. These systems exemplify resilience, allowing water to filter through while robustly sealing oil, conforming to rigorous EPA SPCC regulations. Albarrie's solutions are trusted by utility giants, nuclear power establishments, renewable energy sectors, and industrial powerhouses, reinforcing infrastructures across the board.

Effective protection against oil leaks and spills at a fraction of the cost.



FABRICS CHANGING INDUSTRY

Albarrie designs and manufactures innovative nonwoven technical fabrics that solve industrial and environmental issues. With 40+ years of experience, our team is passionate about helping clients resolve daily challenges with technical fabrics and manufacturing expertise.



TECHNICAL EXPERTISE

We have experience that offers the right solution to help you solve your environmental problems through product, planning and service.



WE INNOVATE FOR YOU

We work with you to develop a successful solution to your industrial challenges.



EXCELLENT PARTNERS

From fiber to fabric to fit, we are uniquely positioned to create exclusive technical fabrics for demanding applications.

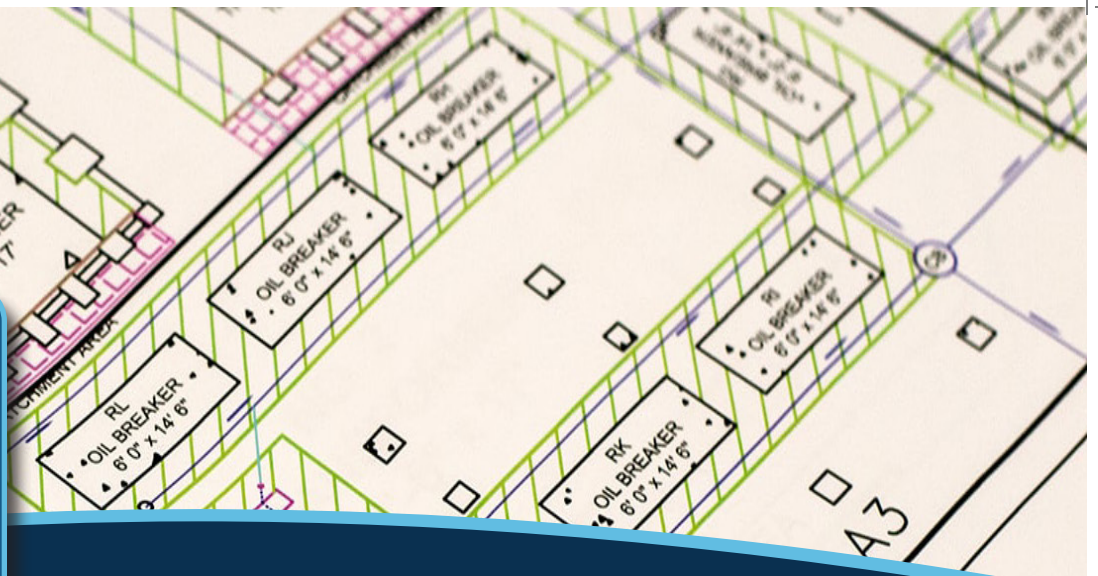


ENGINEERING & DESIGN

FOR TRANSFORMER SECONDARY OIL CONTAINMENT

SUCCESSFUL CONTAINMENT PERFORMANCE FROM DESIGN TO INSTALLATION & BEYOND

Albarrie's transformer secondary containment systems include a trusted professional engineering and design team for successful installation.



KEY BENEFITS



EXTEND ENGINEERING CAPABILITIES

We work with your in-house engineering department to develop a complete solution.



NO OBLIGATION ESTIMATE

Get a free preliminary and estimate to compare solutions in the market.



WIN MORE BIDS

Design package includes a complete list of materials to help you win projects and prepare budgets.



SUCCESSFUL PROJECT COMPLETION

A professional engineering team designs the containment and guides the installation.

CONFIDENCE COMES WITH CERTIFIED PROFESSIONAL DESIGN & SUPPORT

Albarrie's engineering team includes professional engineers, technologists, and technicians with diverse talents to provide state-of-the-art transformer oil containment designs for SorbWeb™ Plus, secondary oil spill solutions, and related products.

PROFESSIONAL CERTIFICATIONS

Albarrie has a Certificate of Authorization/Permit to Practice Engineering from the Professional Engineers of Ontario (PEO), The Association of Professional Engineers and Geoscientists of Alberta (APEGA), The Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS), Engineers Geoscientists Manitoba (EGM) and Engineers and Geoscientists British Columbia (EGBC).



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SECONDARY OIL CONTAINMENT



DESIGN PACKAGES

Albarrie's secondary oil containment design packages include stamped final designs, detailed final reports, and as-built drawings. We design secondary containment solutions to be passive and maintenance-free, allowing drivable access to the equipment.

SERVICE PACKAGES

- Design Only
- Supply and Support
- Turnkey



To Learn More Scan Here!





SorbWeb™ Plus

Secondary Oil Containment System

DON'T LET TRANSFORMER LEAKS COST YOU

Albarrie's transformer secondary oil containment systems use patented mineral oil-reactive self-sealing smart fabric technology, providing a **virtually maintenance-free containment.**

KEY BENEFITS



VIRTUALLY MAINTENANCE FREE

No pumps required. Albarrie's smart fabric traps oil, not water.



ENVIRONMENTALLY COMPLIANT

Meets EPA Secondary Containment requirements for SPCC 40 CFR 112.7 and IEEE Std. 980.



BUDGET-FRIENDLY

Reduce installation and maintenance costs compared to other transformer oil containment systems.



FLEXIBLE DESIGN

Designed and installed in greenfield or brownfield applications for all soil types within any geometric configuration.

HOW IT WORKS

Albarrie's Transformer Secondary Oil Containment Systems use patented mineral oil-reactive self-sealing **smart fabric technology** known as **Oilmat**. The smart fabric contains a unique proprietary blend of dense oil-immobilizing polymers, called **Alabsorb**, between two needle-punch nonwoven fabric layers that seal on contact with oil, not water. In a passive state, **SorbWeb™ Plus** allows water to pass freely through the **Oilmat** without collection. The **Oilmat** is installed

on the containment floor. When oil comes in contact with the **Oilmat**, it undergoes a chemical change, turning the fabric into an impassable membrane, keeping oil inside the containment area. **SorbWeb™ Plus** includes Albarrie's **Super Absorbent Mat (SAM)**, designed to manage small, chronic leaks without spoiling the containment. It offers an exceptional absorption capability per square inch. SAM absorbs and locks-in oil but remains porous, allowing water to pass through.

OPTIONS

- Above Ground Design
- Below Ground Design
- Concrete Perimeter Wall
- Turn-Key or Supply & Support installation
- Wick Drain (if required)
- Composite Perimeter Walls

FEATURES

- **No more** standing water
- **No more** mechanical moving parts
- **No more** pumping and testing
- **No more** concrete cracks to repair
- Vehicle accessible with full access to the transformer
- Reduced installation costs
- Optimized remediation costs
- Fire-quenching capabilities
- Extended service life
- Significantly decreased risk associated with fire and contamination
- Quick Installation

#FABRICSCHANGING INDUSTRY



SECONDARY OIL CONTAINMENT

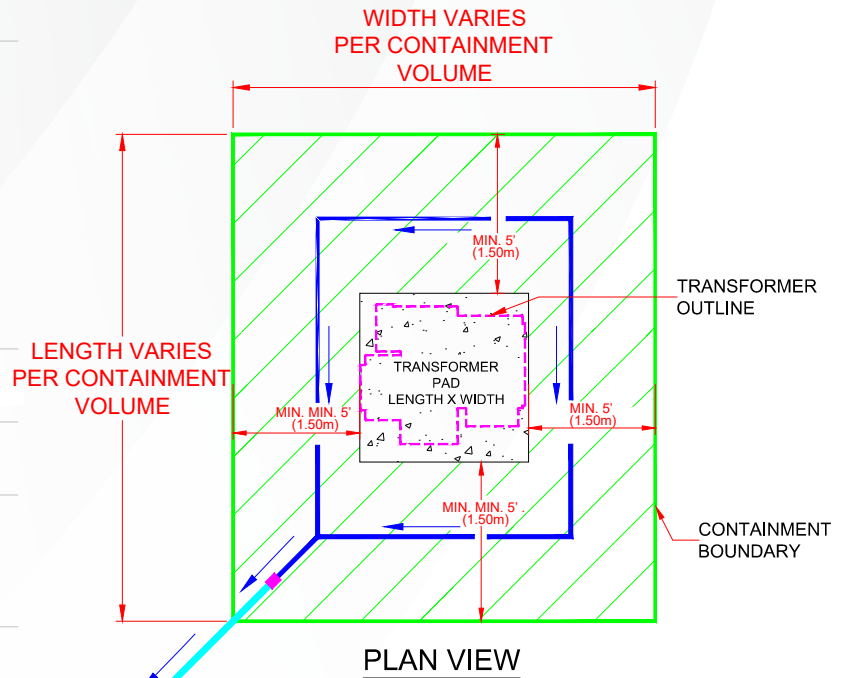


APPLICATIONS

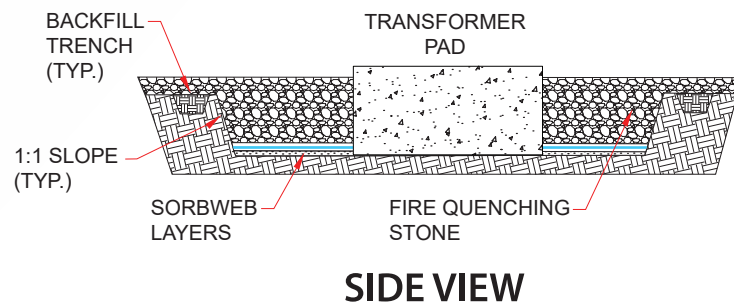
- Permanent Substation Transformers
- Environmentally-Sensitive Areas
- Multiple Above-Ground Transformers
- Solar & Wind Farms

SPECIFICATIONS

Type	
Fire quench stone gradation requirements	1 1/2" to 3" (38 to 75mm) ASHTO #1,2,3,24 ASTM D448-03 Well graded crushed stone with 100% passing the 3" (75mm) sieve and 0% passing the 1 1/2" (38mm) sieve. Note: The fire quench stone must meet resistivity and porosity requirements.
Fire quench stone resistivity	≥3000 Ω-m
Fire quench stone porosity (min.)	40%
Fire quench stone type	Basalt, granite, limestone or a compatible stone type. Should not accept soft stones such as sandstone.
Minimum containment depth	18" (0.45m) from top of fire quench stone containment level to top of oilmat.
Maximum containment depth	48" (1.2m) from top of fire quench stone containment level to top of oilmat.
Separation distance from transformer to containment perimeter	For all projects unless specified otherwise by the client: 5 ft (1.5m) or 1/2 the transformer height whichever is greater.
Containment system oil storage volume requirements (%)	As per client requirements. If no requirements recommend 110% of the volume of the largest oil containing unit plus a 25 year, 24 hour storm. Ensure that each storm volume will drain through system within 4 hours as per US EPA.
Sand Gradation requirements and compaction	All sand layers to be plate tamped in the field with caution being taken when working over the wick drains.



LEGEND
 CONTAINMENT AREA TRANSFORMER OUTLINE
 CONCRETE
 This is not an official engineering drawing and should not be used to scope or bid on projects.



LEGEND
 EARTH CONCRETE STONE SAND
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EsterWeb™

Secondary Oil Containment System

ENVIRONMENTALLY SOUND FOR NATURAL ESTER-BASED FLUIDS & FR3

EsterWeb™ allows water to pass through its smart layers without accumulating, eliminating the need for pumps or oil detection systems.



VIRTUALLY MAINTENANCE FREE

No pumps required. Albarrie's smart fabric traps oil, not water.



ENVIRONMENTALLY COMPLIANT

Meets EPA Secondary Containment requirements for SPCC 40 CFR 112.7 and IEEE Std. 980.



BUDGET-FRIENDLY

Reduce installation and maintenance costs compared to other transformer oil containment systems.



FLEXIBLE DESIGN

Designed and installed in greenfield or brownfield applications for all soil types within any geometric configuration.

HOW IT WORKS

Albarrie's EsterWeb™ Transformer Secondary Oil Containment System uses a unique proprietary blend of dense oil-immobilizing polymers, between two geotextiles. When **natural ester-oil** contacts the polymers, they undergo a chemical change. This chemical change congeals and seals the oil turning it into an impassable membrane, keeping oil inside the

containment area. Due to its chemistry, the solidification time of ester oil is not as quick as mineral oil. As a result, **EsterWeb™** includes a distinct microporous flow control layer that traps and holds a thin layer of water on its surface. This process slows oil penetration while allowing water pass through the system.

OPTIONS

- Above Ground Design
- Below Ground Design
- Concrete Perimeter Wall
- Composite Perimeter Walls
- Turn-Key or Supply & Support Installation
- Wick Drain (if required)

FEATURES

- **No more** standing water
- **No more** mechanical moving parts
- **No more** pumping and testing
- **No more** concrete cracks to repair
- Vehicle accessible with full access to the transformer
- Reduced installation costs
- Optimized remediation costs
- Fire-quenching capabilities
- Extended service life
- Significantly decreased risk associated with fire and contamination
- Quick Installation

#FABRICCHANGING INDUSTRY



SECONDARY OIL CONTAINMENT

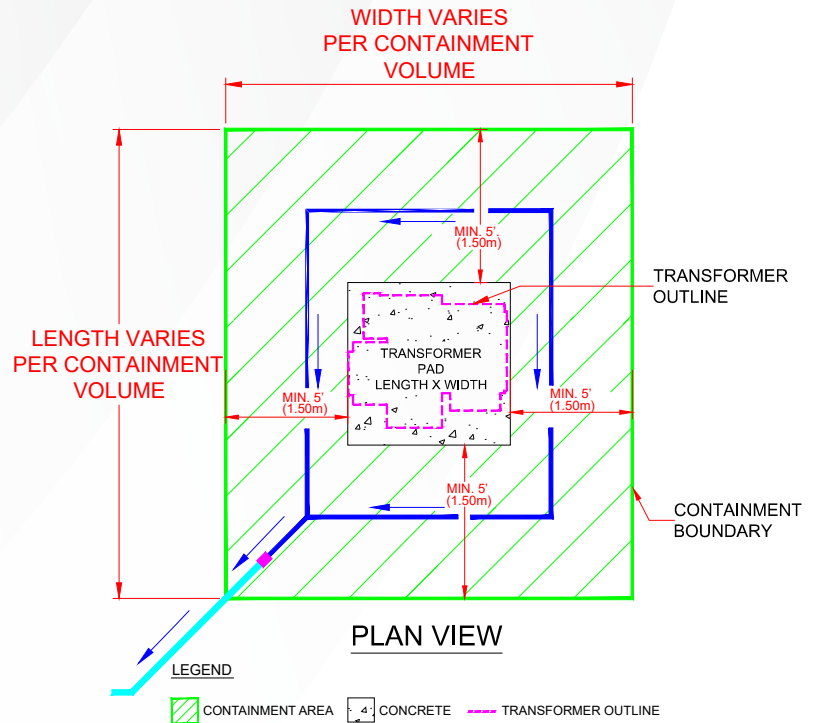


APPLICATIONS

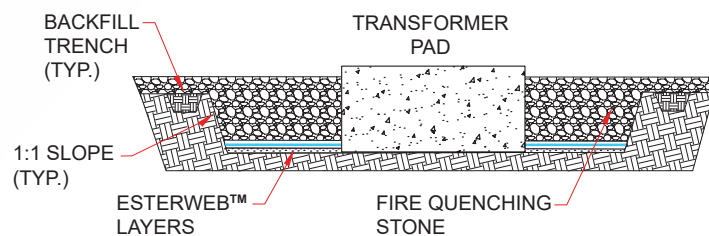
- Large-Sized Permanent Substation Transformers
- Environmentally-Sensitive Areas
- Solar & Wind Farms
- Multiple Above-Ground Transformers
- Suitable for Natural Ester-Based Oil, FR3 or Biotemp.

SPECIFICATIONS

TYPE	EsterWeb™
	1 ½" to 3" (38 to 75mm) ASHTO #1,2,3,24 ASTM D448-03
Fire quench stone gradation requirements	Well graded crushed stone with 100% passing the 3" (75mm) sieve and 0% passing the 1 ½" (38mm) sieve. Note: The fire quench stone must meet resistivity and porosity requirements.
Fire quench stone resistivity	≥3000 Ω-m
Fire quench stone porosity (min.)	40%
Fire quench stone type	Basalt, granite limestone or a compatible stone type. Should not accept soft stones such as sandstone.
Minimum containment depth	18" (0.45m) from top of fire quench stone containment level to top of oilmat.
Maximum containment depth	48" (1.2m) from top of fire quench stone containment level to top of oilmat.
Separation distance from transformer to containment perimeter	For all projects unless specified otherwise by the client: 5 ft (1.5m) or ½ the transformer height whichever is greater.
Containment system oil storage volume requirements (%)	As per client requirements. If no requirements recommend 110% of the volume of the largest oil containing unit plus a 25 year 24 hour storm. Ensure that each storm volume will drain through system within 4 hours as per US EPA.
Sand Gradation requirements and compaction	All sand layers to be plate tamped in the field with caution being taken when working over the wick drains.



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SECONDARY OIL
CONTAINMENT

OILBLOCKER™ PLUS

24/7 SPILL PROTECTION FOR SMALL TRANSFORMERS

Oil Blocker™ Plus uses Albarrie's smart fabric technology. The innovative smart fabric and containment design **proactively protects against oil spills and leaks** around mineral oil-filled transformers.

KEY BENEFITS



VIRTUALLY MAINTENANCE FREE

No pumps required. Albarrie's smart fabric traps oil, not water.



ENVIRONMENTALLY COMPLIANT

Meets EPA Secondary Containment requirements for SPCC 40 CFR 112.7 and IEEE Std. 980.



BUDGET- FRIENDLY

Reduce installation and maintenance costs compared to other transformer oil containment systems.



FLEXIBLE DESIGN

Designed and installed in greenfield or brownfield applications for all soil types within any geometric configuration.

HOW IT WORKS

Albarrie's Transformer Secondary Oil Containment Systems smart fabric technology known as **Oilmat**. The smart fabric contains a unique proprietary blend of dense oil-immobilizing polymers, called **Alabsorb**, between two needlepunch nonwoven fabric layers that seal on contact with oil, not water. In a passive state, **Oil Blocker™ Plus** allows water to pass freely through

the **Oilmat** walls without collection in the containment area. An impermeable liner is installed on the containment floor. If a catastrophic event occurs and oil comes in contact with the **Oilmat** (walls), it undergoes a chemical change. The change turns the fabric into an impermeable membrane, keeping all fluids within the containment area.

FEATURES

- **No more** standing water
- **No more** mechanical moving parts
- **No more** pumping and testing
- **No more** concrete cracks to repair
- Reduced installation costs
- Optimized remediation costs
- Fire-quenching capabilities
- Extended service life
- Significantly decreased risk associated with fire and contamination
- Quick Installation

OPTIONS

- Above Ground Design
- Grouped Equipment Containment Design

#FABRICCHANGING INDUSTRY



SECONDARY OIL CONTAINMENT



APPLICATIONS

- Small Oil-Filled Transformers
- Multiple Above-Ground Transformers
- Environmentally-Sensitive Areas
- Solar and Wind Farms

SPECIFICATIONS

TYPE

1 ½" to 3" (38 to 75mm)
ASHTO #1,2,3,24
ASTM D448-03

Fire quench stone gradation requirements

Well graded crushed stone with 100% passing the 3" (75mm) sieve and 0% passing the 1 ½" (38mm) sieve. Note: The fire quench stone must meet resistivity and porosity requirements.

Fire quench stone resistivity

≥3000 Ω-m

Fire quench stone porosity (min.)

40%

Fire quench stone type

Basalt, granite limestone or a compatible stone type. Should **not** accept soft stones such as sandstone.

Minimum containment depth

12" (304.8mm) from the containment floor to the top of the fire quenching stone layer.

Maximum containment depth

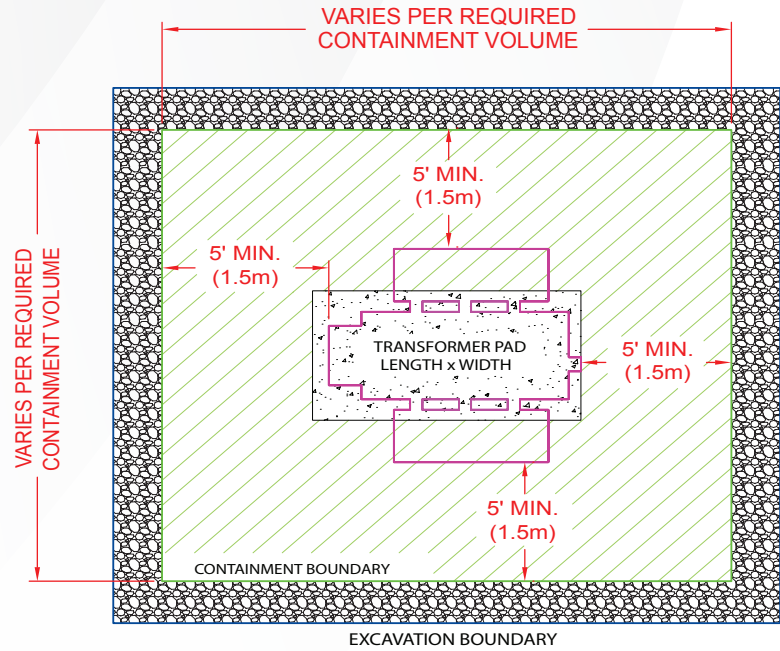
24" (609.6mm) from the containment floor to the fire-quenching stone layer.

Separation distance from transformer to containment perimeter

For all projects unless specified otherwise by the client:
5 ft (1.5m) or ½ the transformer height whichever is greater.

Containment system oil storage volume requirements (%)

As per client requirements. If no requirements recommend 110% of the volume of the largest oil containing unit plus a 25 year, 24 hour storm. Ensure that each storm volume will drain through system within 4 hours as per US EPA.

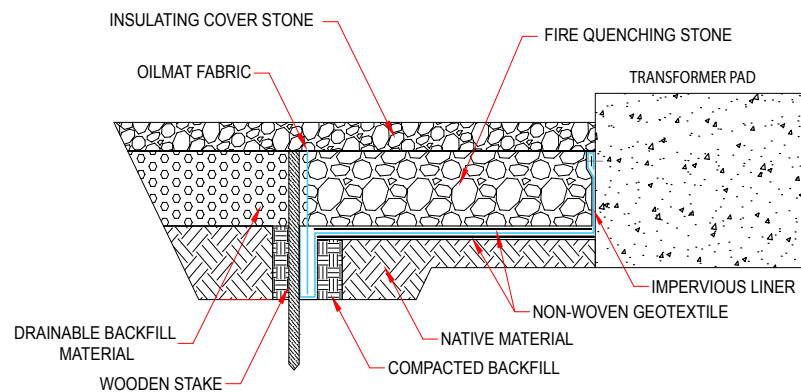


PLAN VIEW

LEGEND

- CONTAINMENT AREA
- CONCRETE
- STONE
- TRANSFORMER OUTLINE

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SIDE VIEW

LEGEND

- EARTH
- CONCRETE
- STONE
- DRAINABLE BACKFILL

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To Learn More Scan Here!





OILBLOCKER PERIMETER BARRIER

AN ECONOMICAL CONTAINMENT ALTERNATIVE

OilBlocker™ Perimeter Barrier keeps oil spills within a confined area or around mineral oil-filled equipment, providing an affordable vertical barrier for substations with poor permeability sub-grade soils like clay.



KEY BENEFITS



ZERO MAINTENANCE REQUIRED

Install it and forget it.



RAPID INSTALLATION

No special equipment is required. Typical installation completed in one day.



SIGNIFICANT COST SAVINGS

Affordable alternative to a full containment system.



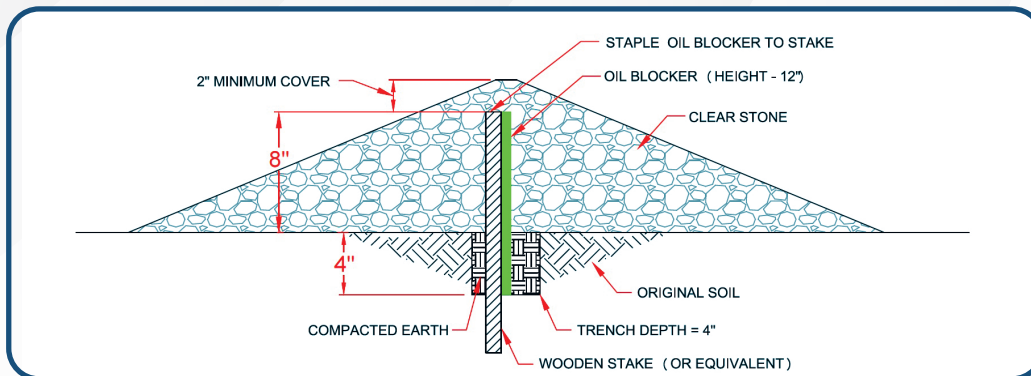
CUSTOM-CUT

Rolls are 105 feet (32 m) long by 15 feet (4.5 m) wide, custom cut width to your requirements.

HOW IT WORKS

Installed vertically, **OilBlocker™ Perimeter Barrier** is a smart fabric used to minimize damage caused by mineral oil spills, controlling the spill by keeping it within a defined containment area. The smart fabric contains a unique proprietary blend of dense oil-immobilizing polymers called **Alabsorb** between two needlepunched

nonwoven geotextile fabric layers. In its passive state, **OilBlocker™** allows water to pass through. Once it comes in contact with mineral oil, the fabric turns into an impermeable barrier, preventing the oil from escaping beyond the **OilBlocker™ Perimeter Barrier**.



FEATURES

- Smart Fabric Technology
- Needlepunched nonwoven geotextiles with oil-immobilizing polymers
- Vertical installation
- Addresses poor permeability in sub-grade soils like clay

OPTIONS

- Slitting

APPLICATIONS

- Substation Perimeters
- Small Oil-Filled Transformers

#FABRICCHANGING INDUSTRY



SECONDARY OIL CONTAINMENT



CONSTRUCTION

Top layer: Black Non-Woven Geotextile F8146

Absorbent Layer: Albasorb 8502M

Scrim Support: Woven Polypropylene

Bottom Layer: Black Non-Woven Geotextile 215B

SPECIFICATIONS

PROPERTY	VALUES	TEST METHOD
Total Mass per Unit Area (Nom.)	96.3 oz/yd ² 3265 g/m ²	ASTM D5993
Total Mass per Unit Area (Min.)	88.1 oz/yd ² 2988 g/m ²	ASTM D5993
Polymer Loading (Nom.)	82.6 oz/yd ² 2800 g/m ²	Manufacturer Technical Data
Polymer Loading (Min.)	73.7 oz/yd ² 2500g/m ²	Manufacturer Technical Data
Peel Strength (Min.)	0.7 lb/in 125 g/cm	ASTM D6496
Peel Strength (Min.)	4.9 lbf 2.2 kgf	ASTM D4632
Grab Tensile	80 lbf 36.3 kgf	ASTM D6768
Elongation at Peak	30%	ASTM D4632
Puncture Resistance	194 lbf 88 kgf	ASTM D4833
CBR Puncture Strength	819.0 ± 90.4 lbf 371.5 ± 41.0 kgf	ASTM D6241
Compressive Strength	20.5 ± 1.74 psi 141.3 ± 12 kPa	ASTM D6364
Trapezoidal Tearing Strength – Machine direction	113.0 ± 9.0 lbf 51.3 ± 4.1 kgf	ASTM D4533
Trapezoidal Tearing Strength – Cross Machine direction	185.0 ± 29.8 lbf 83.9 ± 13.5 kgf	ASTM D4533
Hydraulic Conductivity (@ 5 psi, 20°C)	5.0x10 ⁻⁵ cm/s	ASTM D5084
UV Resistant*	70% @ 500 hours	ASTM D4355

To Learn More Scan Here!





SECONDARY OIL CONTAINMENT

OIL SPILL & LEAK CONTAINMENT

TRANSFORMER VAULT SECONDARY OIL CONTAINMENT KIT

Albarrie's Oil Containment Vault Kits are designed to capture oil leaks from underground transformer vaults.

KEY BENEFITS



ZERO MAINTENANCE REQUIRED

Install it and leave it until saturated.



EASY INSTALLATION

Can be installed by any contractor with a new vault installation



SIGNIFICANT COST SAVINGS

Affordable leak management alternative to a full containment system



ENVIRONMENTALLY COMPLAINT

Designed and installed in Meets EPA Secondary Containment requirements for SPCC 40 CFR 112.7 and IEEE Std. 980.

HOW IT WORKS

A transformer vault is a concrete room to house either transformers or auxiliary transformer equipment such as voltage regulators, circuit breakers, meters and cables. When transformers are stored underground inside a vault they must

adhere to environmental regulations. Albarrie's Oil Containment Vault Kits are designed to capture oil leaks from underground transformer vaults. They are also an excellent solution for concrete pad-mount foundation systems.

FEATURES

- Cost-effective solution for oil spill protection.
- Durable and reliable construction using concrete vaults.
- Versatile use for various foundation systems.
- Environmentally conscious by adhering to regulations.
- Efficiently captures and contains oil leaks from transformer vaults.

OPTIONS

- Customized to specific vault
- Dimensional Tailoring

APPLICATION

- Small distribution transformers on precast vaults

To Learn More Scan Here!



SECONDARY OIL CONTAINMENT

OUR INNOVATIONS

DRIVEN BY INNOVATION

Albarrie is committed to innovations in needlepunch nonwoven fabrics. We've been committed for 40 years and offer high level customization to many industries.

KEY BENEFITS



VIRTUALLY MAINTENANCE FREE

No pumps required. Albarrie's smart fabric traps oil, not water.



ENVIRONMENTALLY COMPLIANT

Meets EPA Secondary Containment requirements for SPCC 40 CFR 112.7 and IEE Std. 980.



BUDGET-FRIENDLY

Reduce installation and maintenance costs compared to other transformer oil containment systems.



FLEXIBLE DESIGN

Designed and installed in greenfield or brownfield applications for all soil types within any geometric configuration.

TESTING

Within the wide array of industries, cost pressures often result in a requirement for a standard test platform for the design and product verification stages. Because the requirements change when moving from the research phase to the manufacturing phase, this test, measurement, and control platform

needs to have a modular architecture so you can use a variety of measurement tools. Albarrie in conjunction with major utility companies have conducted extensive testing on the SorbWeb™ Plus System both in labs as well as "real environment".

CLIENTELE & TESTIMONY

We take pride in every installation of our products such as SorbWeb™ Plus and love hearing from satisfied clients. Over the years we have been fortunate enough to provide effective oil containment solutions to thousands of companies.



To Learn More Scan Here!



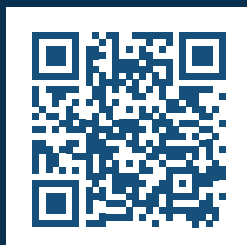
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