PRECIDIUM ECS™

ENGINEERED CONTAINMENT SOLUTIONS

Manufactured exclusively for
Western Engineered Containment by Quantum Group of Companies

WESTERN
engineered containment

Calgary 403.294.0080 | **Drayton Valley** 780.542.3364 | **Leduc** 780.986.9599 | **Grande Prairie** 780.567.3757

www.wecontain.com

PRECIDIUM Engineered Containment Solutions (ECS)™

Spray-applied seamless and impermeable coatings with an incredible combination of strength and flexibility, providing long term cost effective protection of the environment.

Containment

PRIMARY: First level of containment, inside portion, that comes into immediate contact with the material being contained.

Uses:
- Sumps
- Frac Ponds
- Containment Ponds
- Irrigation Canals

SECONDARY: Prevents unplanned releases of toxic or hazardous compounds, protecting surface water, groundwater, and soil. These are external to, and separate from primary containment.

Uses:
- SAGD/Thermal Tanks
- Storage Tank Farms
- Water Treatment Facilities
- Oilfield Compressors
- Sewage Treatment

Features of Precidium ECS™ Liners

- Environmentally sustainable coatings are 100% solids, with zero Volatile Organic Compounds (VOCs).
- Provides seamless and reliable containment protection against harsh chemicals, corrosion, abrasion, and impact, even at extreme temperatures and the harshest of conditions.
- Can be sprayed onto virtually any substrate such as steel, wood, asphalt, concrete , and geotextile.
- Any number of penetrations can be seamlessly incorporated into the liner, without jeopardizing its integrity – No piling boots.
- Can be sprayed to any thickness in any application.
- Tack free within seconds, reducing expensive downtime.
- Excellent application, adhesion and durability in harsh containment environments.
- Unencumbered facility construction therefore last in last out.

PRECIDIUM Engineered Containment Solutions (ECS)™

***Precidium ECS™** products prove their worth in comparison testing to HDPE sheet membranes (plastics) which simply can't match the flexibility, elasticity and strength of a Seamless ECS Liner*

Precidium ECS™ vs HDPE

Background
Both **Precidium ECS™** and High Density Polyethylene (HDPE) are used for containment. This comparative testing validates the growing preference in industry for spray-applied elastomers. Obvious advantages include:

1. seamless application
2. temperature resistance
3. variable thickness
4. the ability to cover complex surfaces

Samples were tested for tensile strength, elongation, impact resistance, thermal stability and coefficient of friction under different conditions.

Test Method
ASTM D412: Samples of HDPE and **Precidium ECS™** were stressed to 200% elongation using an Instron Universal Testing Machine. They were allowed to recover for an hour and the thickness of the stressed areas were measured. The samples were tested again; until break. The extensometer was placed on the pre-stressed sections, to observe how the recovered areas performed.

ASTM D2794: Free film samples of both products were subjected to several impacts at 320 inch-lb using a BYK Gardner Impact Tester. Samples were then inspected for damage and change in thickness.

Conclusion: Both the HDPE and ECS have excellent tensile strength and elongation properties. The critical difference is **product recovery**. HDPE fails to recover following stress. **Precidium ECS™** withstands repeated stress, strain and impacts with excellent recovery. Where lining materials are subject to stress, **Precidium ECS™** ensures continued compliance with AER (formerly ERCB) D55.

Test Results

Impact Testing

HDPE:
After 320 inch-lb impact, picture on the left shows the thinning along the outside of the impact zone.

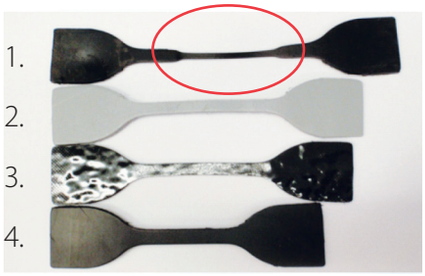
Precidium ECS™:
After 320 inch-lb impact.

Recovery after 200% stress

from top down:

1. HDPE
2. **Precidium ECS™ 650D**
3. **Precidium ECS™ 950D**
4. Control

HDPE non-compliant after stress



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PRECIDIUM Engineered Containment Solutions (ECS)™

Satisfied Customers

Anterra Energy Inc.
ARC Resources Ltd.
Artek Exploration Ltd.
Baytex Energy Ltd.
bellatrix Exploration Ltd
Canadian Natural
Connacher Oil and Gas Limited
Drifter Projects Ltd
EnCana
Esso Imperial Oil
Husky Energy
Morgan
Pembina
Pillar
Secure energy services
Southern Pacific Resource Corp.
Talisman Energy

Compelling Considerations

- **Precidium ECS™** products have been in service for 12+ years without issue in heated crude oil tanks, providing a cost-effective and long-term option compared to products requiring frequent replacement.
- Each containment can be spec'd to vary in mil thickness and/or FR rating by area and be fused together to form a seamless liner.
- Robotic Application of pre-fabricated panels ensures a flawless finish for the highest QA/QC and dramatically decreases on-site install time.
- **Precidium ECS™** products have superior elastomeric and cohesive strength properties, creating a more durable coating. These coatings withstand greater temperature fluctuations, substrate movement and high traffic volumes where other products may fracture or deteriorate.
- In the event of a spill with our **Precidium ECS™** liner, remediation is typically a simple clean up by washing with pressure washers and removing spilled materials with vacuum trucks. If a repair is required it is done quickly and effectively. This saves considerable time and money when compared with alternate liners that may require sand (and substrate) removal as well as installation of a new liner or repair procedures that are extensive and typically unsatisfactory.
- **Precidium ECS™** products have been formulated for application in extreme temperatures.
- Fast curing and application on complicated projects reduces labour and greatly improves project scheduling and time lines.
- Spray on products can be applied directly to most substrates. HDPE/LDPE products are unable to adhere directly to substrates, limiting some applications.
- **Precidium ECS™** Products can be formulated to meet exact requirements, providing innovative, project specific solutions.

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