

Pro-SealECCO Nano Soils Stabilization System

Choose Green, Choose Pro-SealECCO Systems



Pro-SealECCO Nano Novel Matrix

Extreme Soil Stabilization And Toxic Leachate Containment

GO Green NSF Certified Compliant USEPA Compliant US FDA Compliant
USACE ASTM Compliant LARR Compliant CSI Compliant LEED Compliant



Dust Control

Installed in situ, Pro-SealECCO, mixed in place at 2" to 6" of depth, offers a long lasting dust control and airborne toxin containment i.e. RCRA 8, PFOS & PFAS.



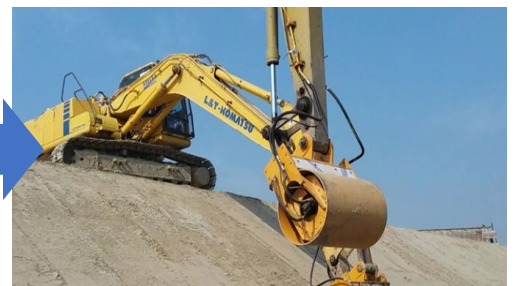
Mud Control

Installed In situ, Pro-SealECCO, mixed in place at 2" to 6" depths, stabilizes mud for long lasting control.



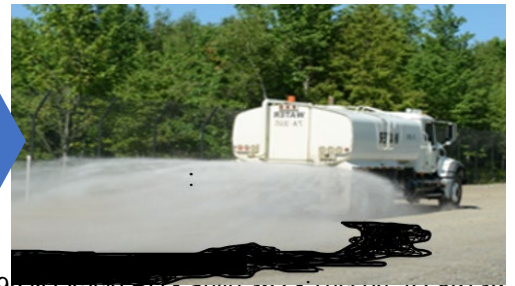
Soil Stabilization

In situ installation of Pro-Seal ECCO, mixed in place at 2" to 6" of depth, establishes long lasting stabilized base soils.



Containment

In situ placement of Pro-Seal ECCO, at 2" to 6" depths, offers long lasting stabilized toxic containment. At completion, spray apply Pro-Seal ECCOs fluid and methane barrier membrane, creating a secondary & primary containment system for methane, other gasses, fluids, RCRA 8, PFOS & PFAS.



195 N Oracle RD • Suite 302 • Tucson, AZ 85739
JSA/CND: 800.349.7325 • Int'l: +1 520 704 4010

information@prosealproducts.com

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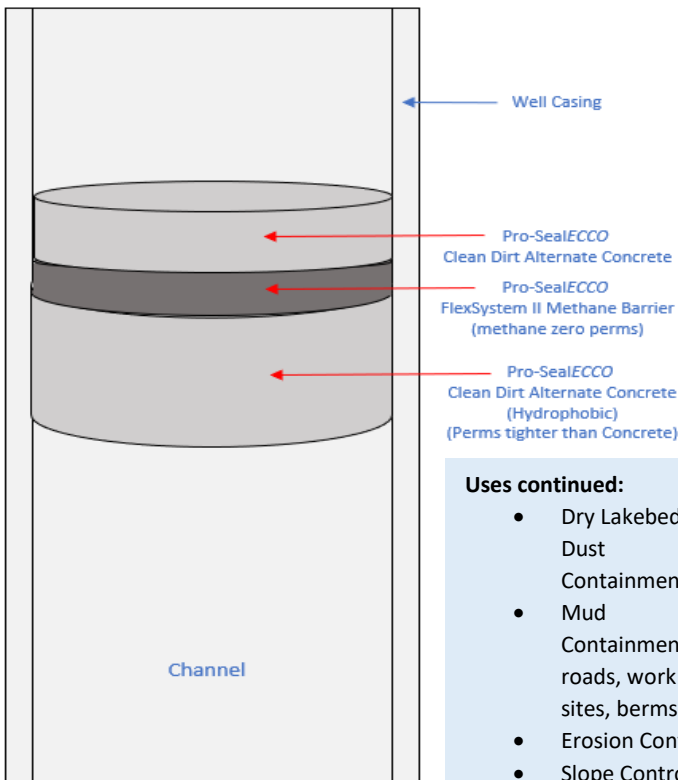
Alternate Concrete

Installed in situ or excavated, mixed, and poured, Pro-Seal ECCO creates an alternate concrete for walkways, trails, pads, slabs, retention pond, pony walls, walls, well closures, and more! Left a core from a Pro-SealECCO alternate



concrete soil additive mixed with soil. Above, a Slab and cores from the slab, mixed site soil with Pro-SealECCO alternate concrete additives and poured into a form achieving >3,800 psi.

Abandoned Oil Well Closure Sealing



Uses continued:

- Dry Lakebed Dust Containment
- Mud Containment: roads, work sites, berms
- Erosion Control
- Slope Control
- Leachate containment
- Cap Wells, Mine Berms, Landfills
- Slabs
- Pony walls
- Retention walls
- Pads, etc.

Uses:

- Primary Road Bases
- Utility Access Roads
- Secondary Containment Walls
- Slip Form Irrigation Trench Liners

Containment Basins for Landfill and Mine Tailings



Stabilize soil semi-structurally, then spray the flexible barrier, and cover with appropriate site medium, for landfills and mine tailings basins. No more liners to weld! Upon closure, the same systems can be used to cap and cover Landfills and Tailings berms.

Water Canal Liners to Stop Water Lost to Ground



12995 N Oracle RD • Suite 502 • Tucson, AZ 85739
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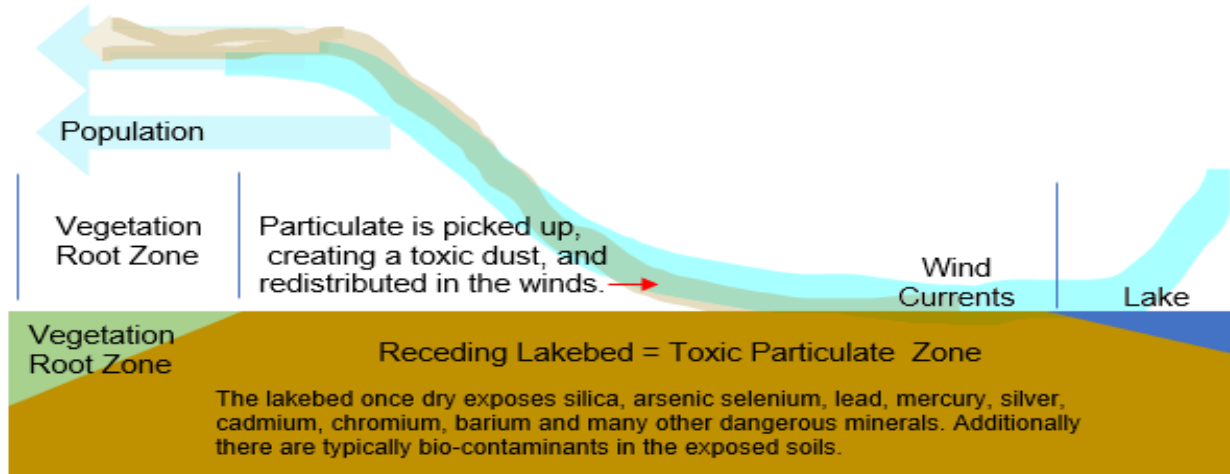
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50% of all water lost, in earthen canals, is lost to ground, on its journey to destination. Reduce stress on our water supply, stop the water loss.

Stop Toxic Dust from Dry Lakebeds, Mine Tailings, & More

The Dry Lakebed Toxic Dust Challenge in Simplistic Terms



As the lake recedes, exposing lakebed, it leaves the loose silt or gravelly soil of the lakebed exposed to the elements, rain, heat, and wind. The wind picks up the dried particulate. The particulate itself can be a health hazard, add to that bio content and toxic mineral content and we have a dangerous brew being inhaled by children and adults alike. The inhalation of these particulate can cause illness and disease that is crippling and/or deadly to human, avian, and animal populations alike.

Mine Tailings & Landfill Basins

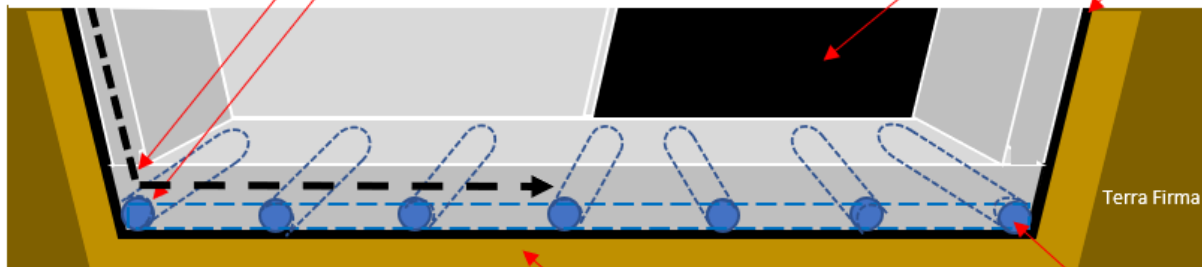
Stop Leaching of RCRA8 Metals, PFOS, PFAS, and Methane

Mine Tailings Storage Secondary and Primary Containment Basin Construction

Gravel filter layer with drain tile grid for greywater or other fluids.

Geotextile filter fabric maybe placed over aggregate and covered with protective soil layer as required.

Pro-Seal FlexSystem II is sprayed directly onto semi-structurally stabilized site soil. This creates a seamless, monolithic, impermeable, and elastomeric primary containment liner.



Pro-SealECCO System is hydrophobic. It is in situ blended into site soil as a semi-structural stabilization material. The stabilized base performs as secondary containment once it is covered with the spray applied **Pro-Seal FlexSystem II** seamless, monolithic, and elastomeric primary containment liner.

Greywater contaminant fluids collection system. Fluids to be sent and/or pumped to treatment facility.



Phoenix, Az 85739
1 520 704 4010

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Extreme Leachate Testing With Incredible Results!

Modified EPS TCLP Test: PFAS contaminated soil mixed with 24% additive, cured 30 days, tumbled, exposed in pH 3.0 sulfuric acid 30 days, samples drawn every 24 hours and analyzed, after initial 72 hour exposures.

For more details contact:

Jim Griffin
Global Team Leader - Business Development
Cell: +1 480 797 0123
Email: jim.g@prosealproducts.com

Pro-SealCorps Technical Department
TF 800 349 7325 Int'l +1 206 451 9527
Email: infomation@prosealcorp.com

Contaminant		PFOS	PFHxS	PFHxA	PFOxA		
% of total PFAS by type in soil		74	15	3	2		
Total PFAS ppb:	3478	2738	555	111	74		
Soil Type	Soil % Additive %	Leached Results ppb					
Silty Sand	Additive All Specimens' 24%	76	24	0.0110	0.0070	0.0001	0.0000
Sandy Clay	NanoCrete System	76	24	0.0107	0.0074	0.0001	0.0000
Fatty Clay		76	24	0.0105	0.0071	0.0001	0.0000

Fe tailings and treated tailings tested for RCRA 8 metals content results in parts per billion.

Tailings Type	ICP-EOS Analysis Leach Results From Nanocrete, Nano technology polymerized Fe Tailings								
	In ppb	Ag	As	Ba	Cd	Cr	Hg	Pb	Se
Fe Raw Tailings		1.00	1.32	100.10	0.11	2.10	0.00	2.30	1.20
Fe With Nano Novel Matrix Additive 18% NanoCrete System		0.0140	0.0500	0.0330	0.0100	0.0068	0.0000	0.0150	0.0020
% Change		99%	96%	100%	91%	100%	N/A	99%	100%
Change +/-		+	+	+	+	+	N/A	+	+

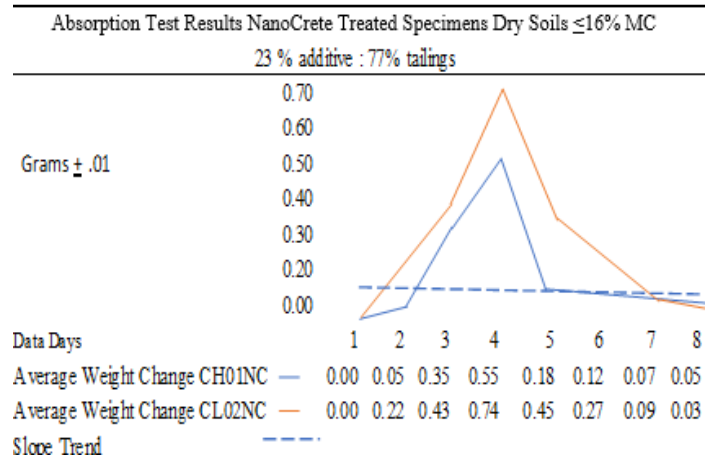
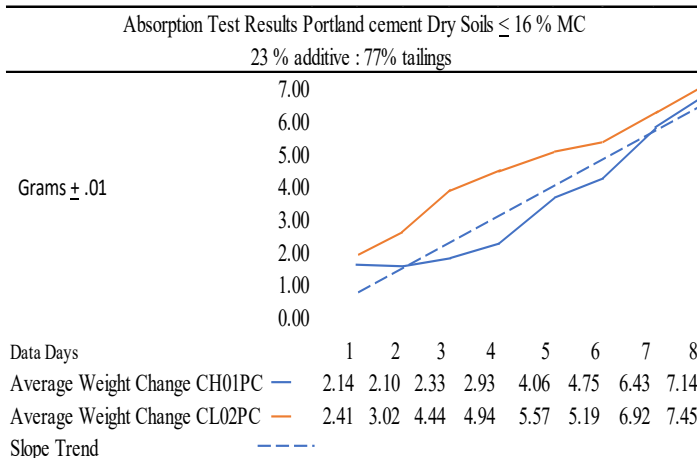
ICP-EOS Analysis Leach Results From Pro-SealECCO Stabilization Leachate Binding Technology, all above tests.

ASTM 642 Absorption

Below Left, Portland cement absorbed 18,333 – 28,420% more moisture than Pro-Seal ECCO Nano Novel Matrix material. **Results: Portland cement is hydro-philic (absorbent).**

ASTM 642 Absorption

Below Right, Pro-SealECCO rejected all water. **Pro-SealECCO is hydrophobic (non-absorbent).** Pro-SealECCO material will not allow water to wick through or pass through it to ground.



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