

SEDFIRST

Sediment Stabilization and Powdered Activated Carbon (PAC) Placement

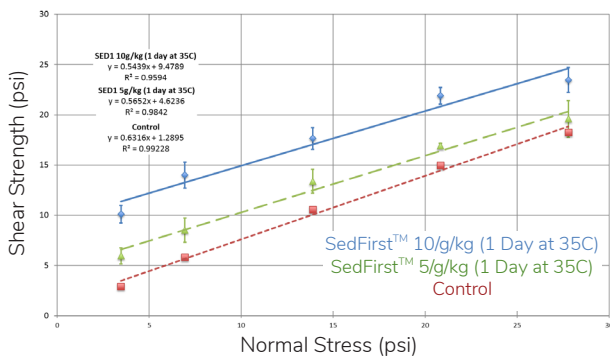
SedFirst™ sediment stabilizer is an innovative technology to stabilize sand caps and can result in the reduction of material needed to meet the cap specifications. This in-situ technology uses a site-specific formulation of Protein and Polysaccharide Biopolymer (PPB) amendments. SedFirst formulations are developed to stabilize sand-based isolation capping of sediment, minimize dredging-related resuspended sediment, and efficiently transport Organoclay® and Powdered Activated Carbon (PAC) amendments through the water column for in-situ placement with a sand matrix. Proprietary PPB formulations have been developed by Dr. Dahmani and distributed by EcoStable Technologies.

SedFirst treatment passed the aquatic acute toxicity tests (> 90% survival) in an aquatic toxicity testing conducted at New England Bioassay (NEB) in Manchester, CT. SedFirst formulations are composed of polysaccharides and vegetable protein extracts that are generally recognized as safe (GRAS) by the FDA.

When a solution of SedFirst is placed in sand, sediment, or soil, PPBs abiotically coat the surfaces, thereby enhancing shear strength and cohesion. SedFirst properties were tested at the University of Connecticut (UConn) laboratories:

- SedFirst increases the stability of the sediment caps: sands treated with SedFirst resulted in an increase of shear strength and cohesion of sand and Organoclay® -amended sand
- SedFirst reduced turbidity of sediment/water mixtures on sediment from a tidally influenced mudflat in Barnegat Bay, New Jersey
- SedFirst reduces, by more than 90%, the quantity of PAC lost to dispersion during placement: SedFirst added to PAC and sand before placement minimized the dispersion of (PAC) and fine sand/silt in water.

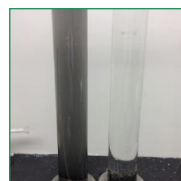
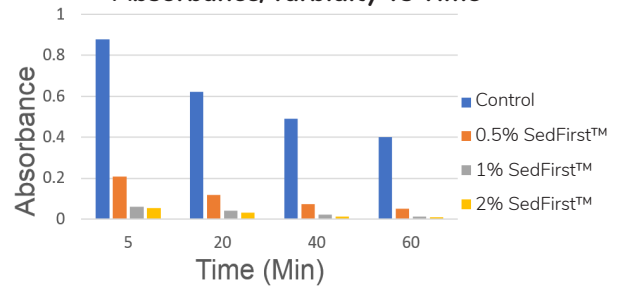
Direct Shear Testing



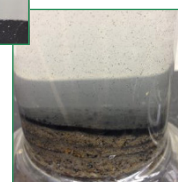
SedFirst™ PPB Product Specifications

- Vegetable Protein Extracts: <20%
- Polysaccharides: <95%
- Off-White Powder; Odorless

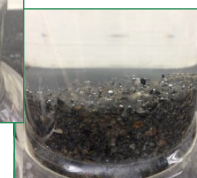
Sediment/Water Reactors Absorbance/Turbidity vs Time



0.5% SedFirst™ treated sand/5%AC (right); untreated sand/5%AC (left)



Untreated sand/5%AC stratification & dispersion



0.5% SedFirst™ treated sand/5%AC, uniform distribution and no dispersion

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