New Product

The Next Generation Treatment for Sodium & Heavy Metals in Soil and Wastewater

3Tier Technologies is proud to introduce a revolutionary shift in the management and remediation of high sodium and metal contaminated soils and wastewater streams. **SA-1000™** is the newest treatment that combines two, next generation, organic bio-polymers. This uniquely blended product possess the following properties and functions; optimal molecular mass, active functional groups, hydrophilic and hydrophobic sites, positively and negatively charged sites, non-ionic sites, and specific interactions between molecules themselves and organic/mineral compounds. The combination of these diverse properties and functions provide a product that utilizes multiple functions and mechanisms to detoxify, neutralize, bind, and convert a myriad of toxic metals to benign residual metals.

SA-1000™ is a convenient, cost effective, liquid treatment product derived from and naturally occurring organic substrate. Our proprietary and patented manufacturing process unleashes unparalleled performance that address most of the potential effects that excess sodium and heavy metals will have in all soil and wastewater applications.

Product Benefits:

- **SA-1000™** adsorbs and coordinates sodium cations and chlorine anions which allow excessive amounts of salt to become more mobile in terms of sodium cations and chloride anions that have a natural ability to flush through the soil or precipitate out of water. Any sodium residue creates a new mineral formation resulting in sodium, chlorine, cation and anion conversion into physically and mechanically bound status, thus eliminating salt toxicity resulting in desalination and salt toxicity reduction/ elimination.
- **SA-1000™** will naturally stimulate toxic organic and mineral pollutants decomposition into neutral compounds such as converting Chromium VI to Chromium III.
- **SA-1000™**, with an abundance of hydroxyl and phenolic groups, provides these functional groups that are key to the metal complexation resulting in the binding of various metals.
- **SA-1000™** is immediately soluble and active compared to gypsum applications. See results within a couple weeks.
- In soil, **SA-1000™** creates fresh soil organic matter that results in increased CEC, better water holding capacity, and soil porosity/structure that results in healthy, active soil for re-use.
- **SA-1000™** is a chemically, biologically and geologically active material.
- Cost effective low dose rates for either injection or mechanical applications.

For additional information and specific application rates for your project, contact an authorized 3 Tier representative.

SA-1000 - Performance Case Study

The remediation and management of waste tailings from the metals refinery industry is a growing challenge with increased regulations towards heavy metals, salts, and other related contaminants. In an effort to demonstrate the real world performance of SA-1000 and the direct impact it has on metals and salts, 3 Tier received a sample of stainless steel slag directly from a refinery to treat.

Trial Outline:

The slag sample was crushed and screened to a homogenous material with all large clumps removed. An equal amount of processed slag was added to two clean plastic dishes. One dish was treated with SA-1000 (Right Photo Below), wheat seed was added to each dish and mixed into the slag, and each dish watered. Each dish received equal amounts of water daily to aid in normal seed germination for five days.

The photo below shows plant germination after 5 days. After 10 days, the treated sample continued to grow while the untreated dish with limited initial germination all died. The trial was abandoned after 30 days with the treated sample plants remained healthy for the entire time.

Untreated Slag SA-1000 Treated Slag

Summary:

This study has demonstrated the performance of SA-1000 and its ability to reduce/eliminate salt and metals toxicity while providing a valuable organic structure which will sustain growth. Additionally, this study has laid the foundation for a large scale pilot study for the treatment of refinery tailings. The new pilot study will include pre and post material metals and sodium testing and replicate the ability of the tailings to support various plants from seed.

3 Tier is seeking additional tailing remediation locations as well as salt and/or metal contaminated soil sites for additional performance pilot studies. Contact Daniel J Burdette at dburdette@3tiertech.com or Call 877-226-7498.