

Liquid Soil Sealant for Landfill Liners and Covers

Controlling soil conditions at a landfill can be a very daunting and expensive task. Meeting permeability requirements for liners and caps while adhering to very strict environmental laws are only a part of the many challenges facing modern day landfill operators. When these problems are combined with a constant ever-present blanket of dust pollution, the overall responsibilities of managing a landfill can become seemingly overwhelming.

Soils Control International, Inc. (SCI) is in the business of eliminating the difficulties associated with managing soil conditions at landfills. SCI methods are cost effective, environmentally safe, and they can dramatically improve the overall efficiency of landfill operations. With 15 years of experience and with some of the most advanced technology available on today's market, SCI not only solves the problems for meeting permeability requirements and eliminating dust pollution, but it's products, services and methods are proven to pay for themselves many times over.

SCI is a market leader when it comes to permeability improvement and erosion control in landfills, reservoirs, embankments, and in any other type of environment that requires a general hardening and moisture resistance in the soil. SCI's flagship product, **Top-Seal Liquid Soils Sealant and Stabilizer**, is a premium quality additive that very powerfully binds itself to soil particles with a result of a tremendous increase in strength and a significant reduction in permeability. When used properly and in sufficient quantities, Top-Seal is guaranteed to achieve the expected results in a landfill.



Left Photo: Before treatment with Top-Seal



Right Photo: After treatment with Top-Seal

Top-Seal is safe and easy to use. There are no special handling or equipment requirements, and the product is easily distributed into the soil from a water truck.

After Top-Seal is activated in the soil, the process of water evaporation begins the curing phase. As the water is evaporated from the soil, the particles of soil begin to bind themselves into a matrix of Top-Seal and soil. At the same time localized compaction will tighten the matrix to a point that drastically impedes permeability.

The end result is a solid, impermeable, landfill cap, which consists of a tightly bound matrix of soil and Top-Seal. The final result will be a cap that will keep moisture from penetrating from the surface as well as methane gas passing to the surface from below.

In only a few days after treatment, curing and compaction is completed, the cap will start to reach a hardness that can exceed 600 psi. This increased hardness will ensure that the cap will maintain integrity for many years to come without the worry of fracturing due to normal expansion and contraction.

Soils Control International, Inc. would like to propose to you a method, by which a landfill can be capped in accordance with environmental regulations, while at the same time accomplishing this task as efficiently as possible. Our method is well tested and has been proven in many similar situations where ecological and fiscal responsibility must work together. Our program allows our customers to reduce the cost of the total project by reducing costs associated with the procurement of “suitable” capping materials.

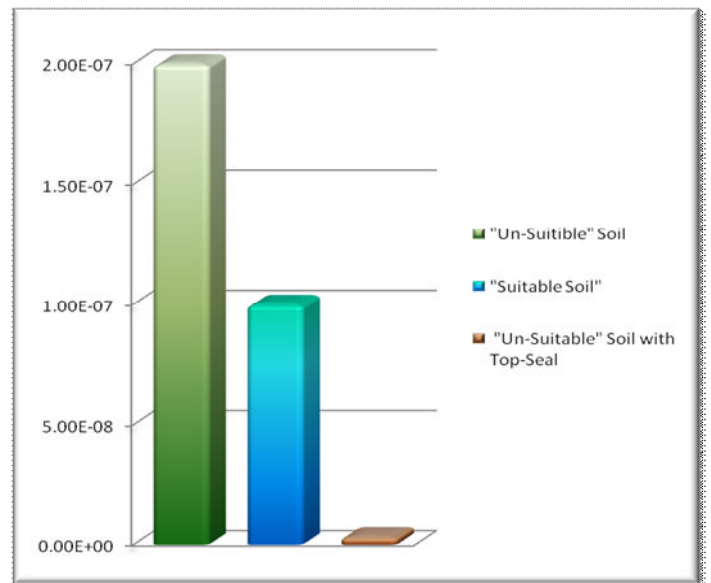
The Term “suitable” is defined by the required permeability coefficient (k) as directed by federal and state environmental protection agencies as well as resource management departments nationwide. In most cases the permeability of a boundary or capping material, must be equal to or less than 1×10^{-7} cm/sec. The challenge is then placed on the necessity to find a suitable material to use as a boundary cap that will meet these standardized regulations.

This is where our company is able to assist. Finding a suitable material for a capping project is often difficult due to land population and usage. It can also be hindered by the fact that in many areas of the country suitable material is not readily available and must be hauled many miles. Locating and hauling a suitable material is becoming one of the largest cost factors in the capping process. Soils Control International is able to assist in this process by allowing the customer to utilize what would be considered “**un-suitable**” material while still meeting the requirements of low permeability.

As noted previously the required permeability coefficient of any material used as a landfill cap is to be no more than 1×10^{-7} cm/sec. Many third party tests have found that the **Top-Seal enhanced “un-suitable”** material can result in a permeability coefficient of 2.9×10^{-9} cm/sec or better, several factors less than the “suitable” material.

Simply by using a material that would normally be regarded as “un-suitable”, and enhancing it with Top-Seal, we are able to improve the permeability coefficient beyond the requirements set by EPA and resource management regulations. Again the smaller the column in the graph, the less water will be allowed to penetrate the cap.

This translates into several advantages for those requiring material for capping a landfill. The first and most obvious advantage is that by using Top-Seal to enhance a soil that would normally be considered “un-suitable”, we are able to take advantage of the discount that comes with that material.



The material that is considered “un-suitable” is advantageous in the fact that the cost of that material is often times several dollars less per cubic yard than a material that is considered suitable. In many cases we have seen a price difference to be as much as fifteen dollars per yard. This varies from location to location depending on population, land usage and prevalent soil types. By using the “un-suitable” soil and treating it with Top-Seal we could save the client several hundreds of thousands of dollars on their capping project.

Remember the objective here is to create a cap that has a permeability coefficient of less than or equal to the required 1×10^{-7} , Top-Seal enhanced soils have shown to meet those requirements and often times exceed them by several factors while at the same time saving much needed capital that may be used elsewhere.