

Smart Sponge® and Antimicrobial Smart Sponge® Plus

Smart Sponge®

AbTech's Smart Sponge® technology is at the heart of its product innovation. Its unique molecular structure is based on innovative polymer technologies that are chemically selective to hydrocarbons. Smart Sponge® fully encapsulates recovered oil, resulting in a substantially more effective response that prevents absorbed oil from leaching. It is also capable of removing low levels of oil from water, thereby successfully removing sheen. In addition, the Smart Sponge® remains buoyant in calm or agitated water, permitting it to remain in place until fully saturated and resulting in no wasted product.

Once oil is absorbed, the Smart Sponge® transforms the pollutants into a stable solid for easy recycling, providing a closed-loop solution to water pollution. Smart Sponge® technology provides a cost-effective BMP with low installation and maintenance labor costs. In comparison to other products, the Smart Sponge® technology also allows easier and less expensive handling and disposal of the waste product, since its technology transforms liquid oil and other pollutants into a stable solid. The Smart Sponge® was designed not to deteriorate in water, allowing for a longer product life.

Smart Sponge for Hydrocarbons

- Chemically selective to hydrocarbons
- Removes up to 3 times its own weight in hydrocarbons
- Removes or reduces sheen
- Remains completely buoyant even after being saturated with hydrocarbons
- Does not require modification of existing structures
- Offers non-point source pollution prevention
- Transforms hydrocarbons into a stable solid per EPA's Toxicity Characteristic Leaching Procedure (TCLP)

Smart Sponge Plus for Hydrocarbons Plus Bacteria

- Smart Sponge Plus reduces coliform bacteria found in stormwater, industrial wastewater and municipal wastewater
- Smart Sponge Plus can be engineered using controlled test parameters (such as modifying flow rates and coliform bacteria concentration) to meet your performance requirements
- Smart Sponge Plus is designed to assist water systems to meet Total Maximum Daily Load Limits (TMDLs) for coliform bacteria
- When properly installed and maintained Smart Sponge Plus provides a significant reduction in coliform bacteria

Smart Sponge® Plus - EPA Reg. #86256-1

AbTech has developed an antimicrobial technology synergistic with the Smart Sponge® technology. This effort produced Smart Sponge® Plus, which features an antimicrobial agent chemically and permanently bound in a proprietary process to the Smart Sponge polymer surface which reduces coliform bacteria. Due to this permanent bond, the antimicrobial agent is active but does not leach or leak, avoiding any downstream toxicity issues. Smart Sponge® Plus offers engineered solutions for reducing coliform bacteria found in stormwater, industrial wastewater, and municipal wastewater.

The Agent used for this innovative technology is an Organosilane derivative which is widely used in a variety of fields including medical, consumables, pool equipment, and consumer goods to impart biostatic activity to the surface of a wide variety of substrates. This Smart Sponge® Plus mode of action, through its bound agent, is very simple (no chlorine or heavy metals involved) and - in surfacebound applications - it neither introduces chemicals into the treated water nor produces toxic metabolites. The antimicrobial mechanism is based on the agent's interaction with the microorganism cell membrane, causing microorganism inactivation, but no chemical or physical change in the agent. Antimicrobial activity therefore does not reduce the agent's capability or cause its depletion, and maintains long-term effectiveness. Additionally, the hydrocarbon absorption capability is not inhibited. The antimicrobial agent is registered with the EPA for a variety of applications. When properly installed and maintained Smart Sponge® Plus provides a significant reduction in coliform bacteria.



Simple Implementation

Products incorporating Smart Sponge® technology are non-mechanical, do not require structural changes to stormwater systems and are easily installed and maintained, often requiring only one person and no equipment. Products such as the Ultra-Urban® Filter with Smart Sponge® Inside fit into most existing catch basins. The Smart Sponge® technology is deployed in products that offer customized solutions for stormwater pollution prevention, oil spill response, process water filtration and other industrial applications to meet specific environmental needs. AbTech Industries offers an extensive product line that is upgradeable to meet evolving community needs and regulatory requirements.

Field Installations

The City of Norwalk, CT in cooperation with EPA is running one of the largest federally funded projects to date for catch basins. The project is successfully demonstrating the ability of the Smart Sponge® Plus Ultra-Urban® Filter deployed in catch basin inserts to remove trash, debris, sediment, oil and hydrocarbons as well as reduce the coliform bacteria concentration from stormwater runoff. The project is in progress.

AbTech's Smart Sponge® Plus Ultra-Urban® Filter was selected by the City of Long Beach, CA to address bacteria contamination in recreational waters. The retrofit project covers a large watershed and the initial monitoring results confirmed a positive effect of the Smart Sponge® Plus in coliform bacteria reduction.

The City of Nags Head, Conch Street Outfall, Nags Head, NC is a project managed by NC Division of Water Resources and designed by Moffatt and Nichol Engineering. AbTech supplied 980 Smart Paks meeting rigorous performance requirements for oil, grease and coliform bacteria.

Disposal Options

As local conditions, product use, and exposure can vary widely, the end user must determine the most appropriate disposal method for a spent Smart Sponge® or Smart Sponge Plus® product. However Smart Sponge® samples saturated with hydrocarbons both in the lab and in the field have been tested according to the EPA's Toxicity Characteristic Leaching Procedure ("TCLP"). These tests show that Smart Sponge® is a "non-leaching" (i.e., non-detect or "N.D.") product. As a result, Smart Sponge® technology can afford many cost effective and environmentally friendly disposal options. The following waste disposal and resource recovery industries have accepted spent Smart Sponge® products for disposal and/or recycling.

Waste-to-Energy Facilities - A specialized segment of the solid waste industry has used spent Smart Sponge® as an alternative fuel in the production of electricity. WTE is acknowledged at the federal level as a renewable energy source under the Federal Power Act, Title IV of the Clean Air Act and is a participant in the Department of Energy's National Renewable Energy Program.

Cement Kilns - This industry has used the spent Smart Sponge® as an alternative fuel in the production process of Portland Cement. This process is considered a beneficial reuse of waste products. The BTU value of spent Smart Sponge® is consistently above the average acceptable levels set for this high temperature.

Landfills - As discussed above, spent Smart Sponge® products have been classified as a solid waste and have been accepted at Subtitle D Landfills.

For more information about the Smart Sponge® technology, visit www.abtechindustries.com or call 1-800-545-8999.

Please keep in mind that, depending upon local conditions, product use, and exposure, a spent Smart Sponge® product could contain one or more of a wide range of contaminants that may impact available disposal options. As a result, generators of spent Smart Sponge products must have their waste analyzed, tested, and classified to determine the appropriate disposal method.

AbTech Industries does not take any responsibility for handling, transport, disposal, or recycling of spent Smart Sponge® products. For a more detailed disposal/recycle overview, please see the "Smart Sponge® Products Disposal Option" documents available upon request from AbTech Industries.

AbTech Smart Sponge® products have been extensively tested both in the laboratory and in the field – with additional testing on-going all the time. Nevertheless, because local conditions, product use, and exposure can vary widely, individual results may differ.

AbTech Smart Sponge® products must be used properly and in accordance with all manufacturer instructions. AbTech Industries does not take responsibility for any product misuse.



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MAKERS OF
smart sponge
PRODUCTS

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