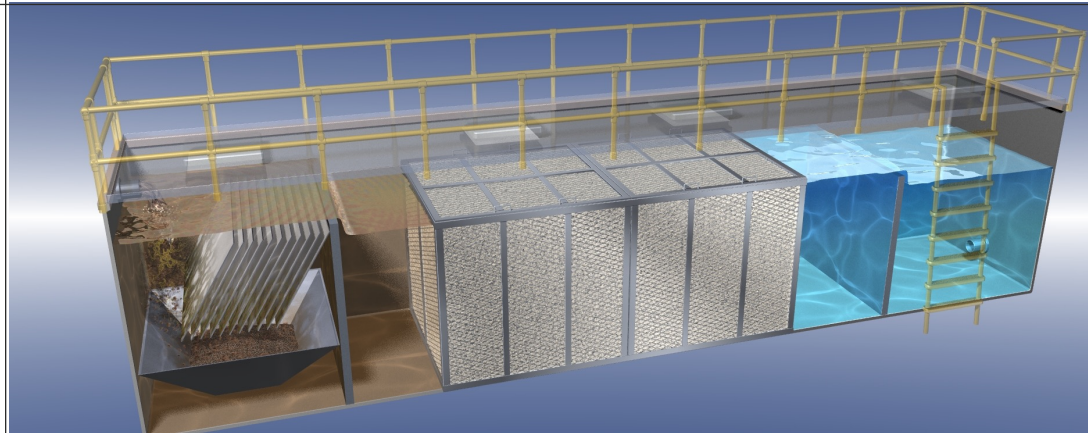


# EOP Water Quality Unit

## END-OF-PIPE REDUCTION OF HYDROCARBONS, HEAVY METALS, AND BACTERIA

SMART SPONGE TECHNOLOGY IS BASED ON A PROPRIETARY BLEND OF SYNTHETIC POLYMERS AIMED AT THE REMOVAL OF HYDROCARBONS AND OIL DERIVATIVES FROM WATER.



The EOP Water Quality Unit is a three section tank comprised of fiberglass reinforced with plastic composite that comes in a variety of shapes and sizes. The units are inexpensive, durable and lightweight making them easy and economical for shipping and installation at customer sites. Variations of installed Smart Sponge media can help to reduce hydrocarbons, heavy metals, and bacteria

### SMART SPONGE®

Is chemically selective to hydrocarbons and capable of removing up to 1.5 times its own weight in hydrocarbon contamination. Smart Sponge is capable of transforming hydrocarbons into a stable solid per the EPA's Toxicity Characteristic Leaching Procedure (TCLP)

### SMART SPONGE® PLUS

Is registered with the EPA (Registration # 86256-1) for the reduction of total coliform bacteria. Smart Sponge Plus features an antimicrobial agent that is chemically and permanently bound to its polymer surface.

### SMART SPONGE® HM

Reduces Cadmium, Copper, Chromium, Lead, Zinc, Iron, Arsenic, Selenium and Ortho-Phosphate. Smart Sponge HM also inhibits growth of mildew and mold in a variety of applications.

## MODIFIED WATER QUALITY UNIT

The End-of-Pipe Water Quality Unit (EOP WQU) combines the sediment treatment capabilities of a traditional Water Quality Unit (WQU) with AbTech's patented media for water quality improvement. The first step of stormwater treatment using the EOP WQU is to capture sediment that enters the stormwater system. The integration of AbTech media allows for a secondary treatment step, where a reduction in hydrocarbons, phosphorus, heavy metals or bacteria occurs, depending upon the filter media applied.

## APPLICATIONS

The EOP WQU is a water treatment system that can be installed in both urbanized and remote locations. The EOP WQU is a pre-fabricated system, which allows for streamlined installation in any underground pipe network, and the HDPE material that comprises each unit makes it strong and abrasion resistant. The EOP WQU can be installed in environments where there are known water quality issues, which allows AbTech media to effectively treat the contaminants of concern. Depending on site water quality requirements, the following AbTech products can be used within the EOP WQU:

- Smart Sponge for hydrocarbon removal
- Smart Sponge Plus for hydrocarbon removal and bacteria reduction
- Smart Sponge HM for heavy metal and phosphorus removal

## BENEFITS

- 80% sediment removal
- 80% oil & grease removal (for Smart Sponge and Smart Sponge Plus applications)
- Total Phosphorus removal as high as 98% (for HM applications)
- Heavy metals removal as high as 98%
- HDPE material resists corrosion
- Access risers to allow for vac-truck removal of sediment and easy change out of media
- Bypass system diverts flows greater than the first flush

## VARIATIONS

The EOP WQU comes in various shapes and sizes to help meet the needs of customers:

- FRP Composite horizontal
- HDPE horizontal pipe
- Low head pressure

The EOP WQU can be customized with AbTech's technology to help treat various contaminants:

- Smart sponge for hydrocarbon removal
- Smart Sponge Plus for hydrocarbon removal and bacteria reduction
- Smart Sponge HM for heavy metal and phosphorus removal

# Experts in Water

## THE EXPERTISE TO CONSULT BUSINESSES ON COMPREHENSIVE WATER SOLUTIONS

### HEAVY METALS REMOVAL

AbTech's Smart Sponge Heavy Metals (HM) media uses renewable resource based metal nanocomposites extruded into a macro-porous sponge. The media is in the form of hematite/magnetite and will bind to phosphorus resulting in removal rates as high as 98%. When applied as tertiary treatment, Smart Sponge HM has been shown to present low capital cost, smaller footprint and significantly lower operating costs than conventional treatment systems.

Phosphorus is one of the major nutrients contributing to the increased eutrophication of lakes and natural waters. Its presence causes many water quality problems including increased purification costs, decreased recreational and conservation value of impoundments, loss of livestock and the possible lethal effect of algal toxins on drinking water.

### BACTERIA REDUCTION

Smart Sponge Plus features an antimicrobial agent chemically and permanently bound in a proprietary process to the Smart Sponge polymer surface which reduces total bacteria. Due to this permanent bond, the antimicrobial agent is active but does not leach or leak, avoiding any downstream toxicity issues. AbTech's Smart Sponge Plus targets bacteria such as enterococcus, Escherichia coli and fecal coliforms.

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 reduce coliform bacteria. This Smart Sponge Plus mode of action, through its bound agent, is very simple (no chlorine or heavy metals involved) and - in surface bound applications - it neither introduces chemicals into the treated water nor produces toxic metabolites. The antimicrobial mechanism is based on the patented 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 maintaining long-term effectiveness. Additionally, the hydrocarbon absorption capability is not inhibited.

### HYDROCARBON REMOVAL

Smart Sponge fully encapsulates recovered oil, resulting in a substantially more effective response that prevents absorbed oil from leaching. It is also capable of successfully removing sheen. In addition, Smart Sponge is buoyant in calm or agitated water, permitting it to remain in place until fully saturated, 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. Smart Sponge technology is a cost-effective BMP with low installation and maintenance labor costs. In comparison to other products, the Smart Sponge technology allows for less expensive and less problematic handling and disposal of the waste product designed not to deteriorate in water, allowing for a longer product life.

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.

### ABOUT ABTECH

AbTech offers innovative solutions for Stormwater Management and Industrial Water Treatment. AbTech integrates its own advanced technologies along with third-party technologies and systems to provide customers with effective and economical solutions. AbTech products include advanced filtration media technologies and various water treatment systems.

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**ABTECH'S PROCESS CREATES A VERY POROUS STRUCTURE WITH HYDROPHOBIC AND OLEOPHILIC CHARACTERISTICS CAPABLE OF SELECTIVELY REMOVING HYDROCARBONS WHILE ALLOWING FOR HIGH FLOW THROUGH RATES.**

### DISPOSAL

The 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.

**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.

**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.

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