



**IRISH TAR**

**BRINGING QUALITY TO THE SURFACE**

## **INTRODUCING SMART SPONGE**

### **SMART SPONGE IS A MULTI PATENTED HYDROCARBON RECOVERY SYSTEM**

**Smart Sponge®** is a revolutionary new product that has been taking the USA surface water market by storm for the past 10 years. Developed for the oil industry, the **Smart Sponge®** is based on patented polymer technologies and is the only non-toxic, fully recyclable filtration system that destroys bacteria and absorbs hydrocarbons on contact. Contaminated storm water runoff, known as 'non-point source pollution', is a major source of contamination for lakes, streams, rivers, estuaries, coastal waters and even groundwater and forms part of the focus for the Water Framework Directive (WFD).

**Smart Sponge®** is a proprietary combination of synthetic polymers with a unique molecular structure that is chemically selective to hydrocarbons. **Smart Sponge®** fully encapsulates recovered oil, preventing absorbed oil from leaching. It is also capable of removing low levels of oil from water thereby successfully removing sheen, and the spent product can be used within a Waste for Energy process as it produces 10,000BTU thereby creating a closed loop solution with **no** resultant waste product.

In the USA they have very similar problems to us, just on a much larger scale, so their solutions tend to be specific for their needs, some of which are also appropriate in the UK & Ireland. With the ability to absorb many times its own weight in oil and locking it into its molecular structure there is so much potential for a product like this. The new **Interceptor Enhancers** are used to absorb oil within oil water separators so that annual maintenance can be dramatically reduced and the many tonnes of liquid waste can be transformed into just a few kilos of solid waste ready for recycling. Field trials indicate that a 64% saving in annual maintenance costs can be achieved as well as a 99% saving in waste for disposal, which offers incredible year on year financial and environmental benefits.



The **Smart Stop Module** can fit into any chamber and filters hydrocarbons out as the water passes through so you can treat the problem 'at source', but the really clever thing is that if there is a spill and the Module is deluged in oil then it closes off the outlet thereby protecting the sewer network from contamination.

The same principle is used to create the Smart Gully range enabling pollution to be dealt with at source – this is vitally important if Local Authorities are to comply with the requirements of the Water Framework Directive with regard to surface water contamination.

The new **Smart Interceptor** which is designed with highway use in mind delivers significant savings to contractors over the life of their contracts.

This new **Smart Interceptor** is not only more efficient than a conventional system but would also provide the benefits of significant cost savings whilst closing the system to contain the oil in the event of a catastrophic event.



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Apart from the standard **Smart Sponge®** there is also **Smart Sponge® Plus** which has all the features of being able to remove hydrocarbons as well as being the only non-toxic, fully recyclable filtration system that destroys bacteria at the street level. The presence of bacteria in stormwater is a serious problem and poses significant health risks that increasingly result in the contamination of water bodies. The greatest opportunity to reduce this bacterial count is during

rain events through the control and treatment of stormwater runoff. This can be achieved at source by the **Smart Gullies** (fitted with **Smart Sponge® Plus** or alternatively at outlet points such as the Combined Sewer Overflows (CSO's). The **Smart Sponge® Plus's** ability to remove E Coli, Salmonella, Legionnaires etc from moving water makes it the ideal solution for this type of application.

### THE TECHNOLOGY OF SMART SPONGE®

Chemically selective to hydrocarbons:

- Removes sheen
- Transforms pollutants into a stable solid
- Non-leaching
- Fully recyclable

**Smart Sponge®** - a proprietary polymer technology unique in its ability to effectively remove, absorb and retain hydrocarbons from flowing or pooled water. **Smart Sponge®** technology maximises the effectiveness of its oil-absorbing polymers by forming them into an extremely porous structure that allows effective, long lasting absorption, without clogging or channeling, which is common among any other filtration media in a powder, particulate or fibre form.

The **Smart Sponge®** polymers are also hydrophobic and oleophilic – allowing water to pass through while hydrocarbons are absorbed. The structure is so effective, that even as it swells with contaminants, high flow rates and filtering capabilities are still maintained. Field and laboratory tests have confirmed the Smart Sponge® capacity to absorb up to five times its own weight (depending on the type of oil contaminant) and remove up to 95% of the hydrocarbons present in stormwater runoff.

### ABSORBENT VS. ADSORBENT

The **Smart Sponge®** proprietary blend of polymers is oleophilic – an absorbent, which means that hydrocarbons are bonded within its chemical matrix. Therefore, absorption is permanent and saturated product cannot be washed off, squeezed out, or leached from the material during subsequent rain events. Once absorbed, those pollutants are

### SMART SPONGE® PLUS

**Smart Sponge® Plus** – Has all the features of standard **Smart Sponge®** as well as the dual-action capability of destroying several disease-causing micro-organisms from surface water such as:

- Aspergillus Niger
- Trychophyton Mentagrophytes
- Penicillium Pinophilum
- Chaetomium Globosum
- Trichoderma Virens
- Aureobadisiu Pullulans

The anti-microbial agent used for this innovative technology is an organosilane derivative used widely in a number of fields and applications. The antimicrobial mechanism of the Smart Sponge® Plus is based on the agent's electromagnetic interaction with the microorganism cell membrane. Consequently, the antimicrobial action is not depleted over time and maintains long-term effectiveness.

In the **Smart Sponge® Plus**, the anti-microbial agent is chemically and permanently bound to the polymer surface and serves to control fungi, static, odor and mildew as well. Test results demonstrated the maximum bacterial - removal rates of the Smart Sponge® Plus in both dry and wet weather sampling for fecal coliform ranged from 89.4 to 99.6 percent; and for En-terococcus, 96.2 to 99.9 percent.

trans-formed into a stable solid for easy recycling, providing a closed-loop solution to water pollution. Traditional absorbents lack this absorbent characteristic, instead they feature an adsorbent capability that merely attracts hydrocarbons to their surface, but cannot prevent them from leaching back into the environment.



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### **PASSIVE SKIMMER TECHNICAL SPECIFICATIONS**

The Passive Skimmer is designed to absorb and encapsulate hydrocarbons by floating directly on the water in catch basins, sumps, oil/water separators and marine fueling stations. Passive Skimmers are made of a proprietary blend of polymers, called Smart Sponge®, packaged in flexible mesh containers and are available in a variety of sizes.

### **APPLICATIONS**

- Oil/Water Separators
- Hydrodynamic Separators
- Catch Basins
- Marine Fueling Locations
- Commercial Fuel Distributor Facilities
- Commercial Fuel Docks
- Gas Stations
- Parking Structures
- Waste Scrap Facilities

### **KEY BENEFITS**

- Chemically selective to hydrocarbons
- Reduce or remove sheen
- Transforms pollutant into stable solid
- Capable of remaining completely buoyant even after being saturated with hydrocarbons
- Stormwater BMP (Best Management Practice)
- Effective nonpoint source pollution prevention
- Long-standing remediation
- No modification of existing structure is required

### **SIMPLE MAINTENANCE**

Installation of Passive Skimmers is a simple process requiring no structural modifications to existing drainage structures or oil/water separators. Users can simply tie off the passive skimmer with a rope through the grommets or through the center handle. Changeout of Passive Skimmers is also quick and easily accomplished by simply pulling the skimmer out and replacing it. Passive Skimmers are not designed for use in fluid operating temperatures exceeding 130°F (55°C).





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**PRODUCT SPECIFICATIONS**

Product	Dimensions	Unit Dry Weight	Packaging
PS1313	13" x 13"	1.25 lbs. (.57 kg)	40/carton
PS1818	18" x 18"	2.45 lbs. (1.57 kg)	20/carton
PS2727	27" x 27"	5.2 lbs. (2.36 kg)	10/carton



**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.

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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