



## Soil Remediation

Microbe rich, natural powder for oil contamination

Judged best product in South Africa. Our product naturally bio-degrades the contaminant to harmless by-products.

Over a 15 year period a proprietary range of products and methodologies have been developed specifically for the remediation of hydrocarbon contaminated soil.

Mixing a blend of Microbial Based products with contaminated soil the microbes are activated and begin the process of 'devouring' the oil. The oil is processed into carbon dioxide and water.

As the microbes consume the oil, they multiply exponentially. The result is that, with our recommended dosing and procedure, the soil is left free of hydrocarbon contamination within a 90 day period.

**“Around 75% cheaper than relocating to a dump site”**

This process is an environmentally sound and environmentally beneficial process that solves the problem rather than relocating it and usually costs around 25% of the cost of relocation to a dump site. It also eliminates the ongoing responsibility that the 'cradle to grave' ethos imposes.

The originally contaminated area is left free of hydrocarbons with the remaining soil composition nutritionally enriched.



*Contaminated Soil*



*Moved to Treatment Area*



*3 Months Later*

### HOW WE DO IT:

#### Organic SoilFix Solution

This is a microbial powder, sourced from natural agricultural products with a blend of natural, microbial-enhancing products that stimulate growth and activity of the microbes. When the microbes come into contact with the contaminated soil, and water is added, they become active and break down the hydrocarbons, to leaving only nutrient-enhanced soil.

#### Organic SoilFix Liquid

Similar to Organic SoilFix powder, the liquid has, however, had a 'kickstart' and works faster and is stronger than the powder. It has been cultured for a minimum period of 2 months and adding it to the powder activates the powder quicker and 'supercharges' the microbes in the powder.

#### HydroGel

Once the above two products have been thoroughly mixed in with the soil, HydroGel is added and the resultant mix is thoroughly watered. HydroGel acts in the same way as the absorbent in babies nappies, it absorbs more than 150 times it's own weight in water, remains moist, and then slowly releases the absorbed water back into the environment. This has the effect of 'drip feeding' the microbes, ensuring continued action and multiplying of the microbial colonies.

## Bioremediation of Soil

Remediation technologies vary but can be categorised into ex-situ and in-situ methods. Ex-situ methods generally involve relocating soil to a dump site which can be very costly, bad for a new environment and ultimately does not solve the contamination problem, the contaminated soil is just moved to another location. In-situ methods seek to treat the contamination without moving the soil.

Bioremediation is an in-situ remediation process, involving microbial digestion of certain organic chemicals. Techniques used include landfarming, biostimulation and bioaugmentation of soil with commercially available microflora.

Soil contamination is a real risk and the long-term effects can be dire. The reality is that clean soil, like clean water and air, is an integral part of our eco-system. As with most forms of pollution, the predominant reason why soil contamination occurs is man-made waste and the lack of remediation. Industrial and agricultural activities are both to blame for soil contamination; they release chemicals, heavy metals, carbons and the like through their operations.



The size of the contamination, response time of the clean-up crew and the weather conditions are all mitigating factors when deciding on the containment of a specific spill and containment problems.

## ABOUT US

- + ISO 9001 and ISO 14 000 compliant
- + We have over 15 years of experience in our chosen field
- + All Environmentally Acceptable
- + Readily Biodegradable (60% within 28 days)
- + Microbial - in the case of our powders and some of our liquids
- + Mostly water based (as opposed to solvent based)
- + Safe for human or animal contact

## PROVEN SUCCESSES

### Eskom Camden Power Station

Rehabilitation of 20,000m<sup>3</sup> of heavily contaminated soil was remediated back to fertile soil over a period of three months. Beds of 0.5m deep and 3m wide were created to hold the contaminated soil. After 3 months of treating and mixing laboratory tests show a low contamination reading of 900ppm as opposed to the original high readings of 200,000ppm.

### Anglo Platinum Mines Potgietersrus

Rehabilitation of 6,000m<sup>3</sup> of hydrocarbon-contaminated soil. Within 3 months the site was declassified at approximately 25% of the price quoted for removal.

### AngloGold Environmental Management Department

Tested SoilFix with 4 other commercially available bioremediation products to address their hydrocarbon soil pollution issues.

*"According to the analyses, SoilFix proved to be the most efficient (81% bioremediation over 60 day period) and cost effective of the tested products"*

*... AngloGold Environmental Management Department therefore favourably recommend to the AngloGold Business Units the use of SoilFix as a bioremediation product for soil areas contaminated with hydrocarbons."*

H Plomp - Environmental Coordinator  
Waste and Air Quality Management

### BlueStream Environmental Technology (Pty) Ltd

Unit 67 APD Industrial Park 2  
Bernie Street | Kya Sands  
Johannesburg | 2163

Tel: +27 11 708 0555

Tel: +27 82 442 7551

Email: [enquiries@bluestream.co.za](mailto:enquiries@bluestream.co.za)