

# Zebec Biologicals

## Z-BIO HYDROCARBON Rapid Decontamination of Soil & Groundwater

### PRODUCT DESCRIPTION

Z-BIO HYDROCARBON bacterial cultures specifically designed to degrade the light-distilled oil fractions, as well as the heavier fractions of hydrocarbons normally associated with #4, #5, and #6 Fuel Oils, Crude Oil & Coal Tar.

Z-BIO cultures are naturally-occurring, selectively adapted & tolerant of high contaminant concentrations.

### FEATURES

- Rapidly degrades all major organic components of #4, #5, and #6 Fuel Oils, Crude Oil & Coal Tar.
- Can tolerate petroleum hydrocarbon concentrations inhibitory to many indigenous populations.

### ADVANTAGES

- Remediates the site with minimal disruption.
- Improves degradation of petroleum hydrocarbons in biological wastewater treatment systems.
- Provides a natural and ecologically sound approach to remediation.

### BENEFITS

- Quickly decontaminates soil and groundwater containing diesel resulting from leaking underground storage tanks, transfer line leaks and spills.
- Eliminates or reduces further environmental damage through biodegradation of contaminant plume.

### STUDIES AND PERFORMANCE

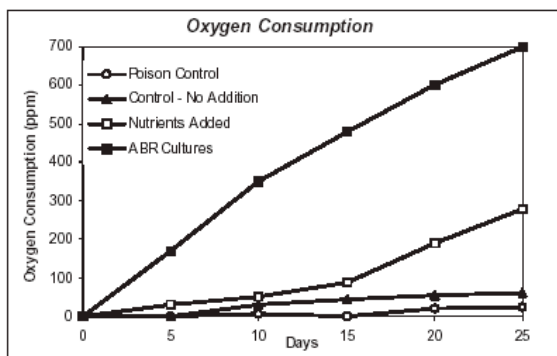


Fig. 1

The rate of oxygen consumption was measured as an indicator of bacterial growth on No. 6 fuel oil. The *HYDROCARBON* sample began consuming oxygen immediately, and as a result achieved an average TPH reduction rate 31% higher than nutrient-stimulated indigenous cultures. After only 25 days, the *HYDROCARBON* cultures reduced the target contaminant concentration by 86%, as compared to 59% when only nutrients were added.

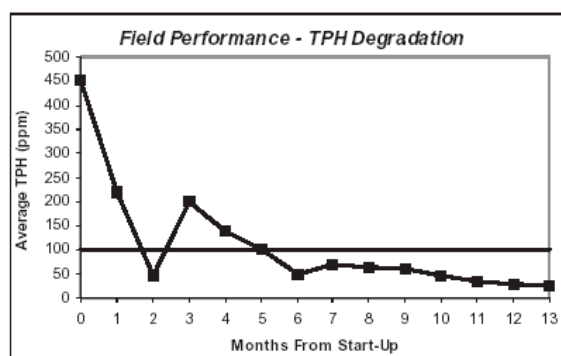


Fig. 2

During field applications, *HYDROCARBON* cultures have proven to be just as effective, having reached the desired endpoints in just seven months. Through lab and field experience, it has found that in most cases, augmenting or supplementing the existing cultures with Z-BIO cultures accelerates the composition process and achieves final concentrations faster than indigenous cultures.

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## **FEATURES**

- Contains vegetative and spore forming bacterial strains capable of utilizing aerobic, facultative and fermentative metabolic pathways.
- Contains no raw enzymes, surfactants or solvents.
- Rapid germination and outgrowth of spores.
- Bacteria can colonize a wide variety of surfaces to produce long-lasting effects.

## **PRODUCT CHARACTERISTICS**

### ***DRY CULTURE***

- Bacteria count 5 billion/gram
- Stability Max loss of 1.0 log/yr when stored under recommended conditions
- pH Range 6.0 - 8.5
- Bulk Density 0.50 - 0.61 g/cm<sup>3</sup>
- Moisture content 15%
- Appearance Free-flowing, tan powder

### **AVAILABLE PACKAGING**

5kg Container / 25kg Container / 2kg Z-BIO SOCK

### ***LIQUID CULTURE***

- Non-stock item. Call for shipping estimate.
- Typically 2-3 weeks backorder.
- Bacteria Count Min. 100 mil/mL, 380 billion/gal at time of manufacture
- Stability Max loss of 1.0 log/6 mos. when stored under recommended conditions
- pH Neutral
- Specific Gravity 1
- Appearance Turbid liquid

### **AVAILABLE PACKAGING**

25 Litre Drum / 200 Litre Container

### **OPTIMUM CONDITIONS FOR USE**

Bacteria in Z-BIO products perform within a Ph range of 6.0 - 9.0, with the optimum typically near 7.0.

Wastewater temperature affects activity, with an approximate doubling in maximum growth rate for each 10°C increase in temperature to an approximate upper limit of 40°C, unless otherwise indicated.

Very low activity can be expected below 5°C.

### **STORAGE & HANDLING**

- Store in a cool, dry place.
- Avoid inhalation. Wash hands thoroughly with warm, soapy water after contact.
- Avoid eye contact.