



## Product Sheet

### D31 Geo-M-1000® Hydrocarbon

- GeoM-1000 is designed to be a broad-spectrum remediation product. Our bacteria blends and nutrients are designed to work on wide range of organic contaminants in an even wider range of conditions.
- Each of the products has been developed to contain as many as a dozen strains of specific hydrocarbon degrading bacteria.
- The GeoM-1000® can be applied in several different ways. Added directly to a containment vessel, injected monitoring/treatment well, sprayed on soil, mixed into contaminated soil, and even metered release in water ways.

#### Benefits

- Cost Effective Remediation
- Destroys Contaminant in Single Step
- Selected, Proven, Safe
- No Excavating, Hauling, Landfilling, or Off-site Handling

#### Biodegradable Organic Compounds

- Acetic Acid
- Naphtha Distillate
- Alcohol, Methyl Alcohol, Ethyl Alcohol
- Polychlorinated Biphenyls (PCBs)
- Solvents Gasoline (BTEX)
- Toluene, Xylene, Ethylbenzene
- Polyaromatic Hydrocarbons
- Methylene Chloride
- Chlorinate Hydrocarbons
- Diesel, Jet Fuel, Fuel, Kerosene
- Trichloroethylene (TCE), Perchloroethylene (PCE)
- Oil/Grease Waste Benzene
- Waste Oil, Crude Oil, Heating Oil
- Oil Mineral Spirits, Paint Thinner
- Phenol, Pentachlorophenol, Cresol



## Geo-M-1000® Product Line

- **Geo-M-1000H\***
  - Developed for general Hydrocarbon remediation.
- **Geo-M-1000CO**
  - Developed for Crude Oil remediation.
- **Geo-M-1000LF**
  - Developed for Remediation in Landfarming applications.
- **Spill-GeoBac**
  - Developed to be a granulated absorbent with remediation abilities.
- **Tri-Phasic #12**
  - Liquid based nutrient solution.
- **ONSF #1**
  - Granular based nutrient solution.





## Product Sheet

### D31 Para-GeoBac® Product line

- Para-GeoBac® is a proprietary combination of natural, facultative anaerobic biologicals and biochemical used in oil well operations to control paraffin chains of length C16 and above.
- Products in this line are used to control paraffin chains, select asphaltenes, inhibit corrosion and scale formation, and much more all with the intent to increase oil production.
- Para-GeoBac can disperse, dissolve, and prevent paraffin deposition through its metabolic by-products, such as biosurfactants, organic acids, ketones, and alcohols. These same metabolic by-products also act to inhibit scale formation.

#### Benefits

- Cost Effective
- Long-term solution
- Selected, Proven, and Safe
- Tax Benefits

#### Bacteria's Effect on Oil

- Reduced Pour/Cloud Point
- Decreased Viscosity
- Elevation in API Gravity
- Increase in Volatile



## Para-GeoBac Product Line

- **Para-GeoBac**
  - Developed to control paraffins in the carbon number ranges of sixteen to twenty-two (C16to C22).
- **Para-GeoBac X**
  - Developed to work on a wider spectrum of higher alkanes than GeoPara-Bac. It is active in the C16to C40 carbon number region.
- **Para-GeoBac XX**
  - Developed specifically to control higher molecular weight alkanes (C40 to C58).
- **Para-GeoBac XXX**
  - Developed to cover virtually any extremely high molecular weight paraffins. It covers ranges from C45 to C60+ paraffins.
- **Para-GeoBac S**
  - Developed to control paraffins in the carbon number ranges of sixteen to sixty (C16 to C60+).
- **Ben-GeoBac**
  - Developed to target the deposition of select asphaltenes and paraffins.
- **Para-GeoBac, X, XX “+” Variants**
  - Developed to be used for production increases, scale control, corrosion control, and emulsion breaking.





## Product Sheet

# D31 Litho-GeoBac®

*Scale & Corrosion Solutions*

- This was developed originally for water flood injection treatments. It is designed to control calcium carbonate, calcium sulfate, and barium sulfate scales.
- It can control some forms of corrosion such as under deposit and mild oxygen. Since its inception it has found a broad field of application in oil wells and other petroleum production systems. It also has nominal paraffin control activity.

## Microbial Products

- Surfactants, Solvents
- Organic Acids

## » Mechanisms

- Chelation, Dispersion
- Anti-precipitation
- Same Properties of Conventional Inhibitors





## Product Sheet

# D31 Corroso-GeoBac®

*Scale & Corrosion Solutions*

### Filming Prevents Corrosion on Metallic Surfaces

- This product has been developed for corrosion control. The filming activity is roughly four times greater than Litho-GeoBac.
- Its paraffin control can be formulated specifically for the application and is derived from a proprietary mixture of approximately 75% PBX and 25% PBXXX. It has also been used to effectively control calcium carbonate, calcium sulfate, and barium sulfate scale.

### Microbial products

- Surfactants, solvents
- Filming Agents

### Mechanisms

- Metal Binding
- Surface Coating





## Product Sheet

# D31 Ben-GeoBac®

*Asphaltene Control*

### Filming prevents corrosion on metallic surfaces

- This product has been developed to target the deposition of select asphaltenes and paraffins.
- It is effective in controlling specific types of asphaltic depositions and improving the flow properties of specific low gravity crudes.
- Ben-GeoBac is usually used in conjunction with other Para-GeoBac products in downhole treatments.
- Ben-GeoBac has also been successfully used to treat tank bottoms.

### Microbial products

- Surfactants, Solvents
- Enzymes

### Mechanisms

- Resin Content Modification
- Chain-Shortening

