

The Live Bacterial Cultures Used in MOP Maximum Oil Pickup

The bacterial cultures contained in MOP Maximum Oil Pickup, are classified as Water Treatment Compounds for use in waste water biotreatment and site remediation. They are the oldest line of bioaugmentation products in the world. The bacterial cultures have been used with complete safety by hundreds of municipalities and industrial waste water treatment operations, site bioremediation contractors, farmers, aquaculture operations and even wildlife refuges since 1965, as an aid in the biodegradation of organic waste.

The ingredients of these bacterial cultures are a simple blend of dehydrated natural bacteria. They are strictly naturally occurring, spore forming non-pathogenic saprophytic facultative anaerobes of the predominant species *Bacillus subtilis* and *B. cereus* and do not attack nor infect living tissue. These bacteria cultures are listed on the National Contingency Plan and accepted by the U.S. Environmental Protection Agency for unrestricted release into U.S. surface waters under emergency spill plans as a biological additive to combat oil spills.

The bacterial cultures are effective biotreatment of fresh or weathered crude oil, mousse and foams, heavy petroleum greases, refinery tars and derivatives, oil sludges, slop, drilled mud residues, weathered lubricant spillage onto railroad track beds, parking lots and garage floors, and many other aromatic and aliphatic petroleum hydrocarbon discharges into both marine and fresh waters and onto land. The cultures have been carefully isolated and adapted to secrete enzymes which initially demulsify oil/water mixtures and convert the hydrocarbon contaminant into fractions of smaller molecular weight. Ultimately, enzyme attack continues until most petroleum fractions will be completely metabolized as a source of carbon for cell growth. Under good environmental conditions, the cultures soon become the dominate microflora in the treatment area and have been shown capable of reducing organic hydrocarbon loads by over 90% within a few weeks to months. However, optimum biodegradation will only occur when the cultures are in physical contact with carbon, elemental nutrients, oxygen and water.

A biotreatment program is dependent upon the environmental conditions present at the site. Adverse conditions such as cold temperatures, oxygen, nitrogen or phosphorus deficient water, chemical toxic load, highly acidic/alkaline pH or excessive dilution of biomass by tides and currents may retard or prevent a desirable level of organic biodegradation. Under favorable conditions, the oil degrading bacterial strains contained in MOP will reproduce every 90 minutes.

The bacterial cultures used in MOP Maximum Oil Pickup are non-hazardous, non-corrosive, harmless to humans, animals, aquatic life and plants and have been released into a variety of waste waters, salt water, fresh water and soil treatment areas with complete ecological safety.

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