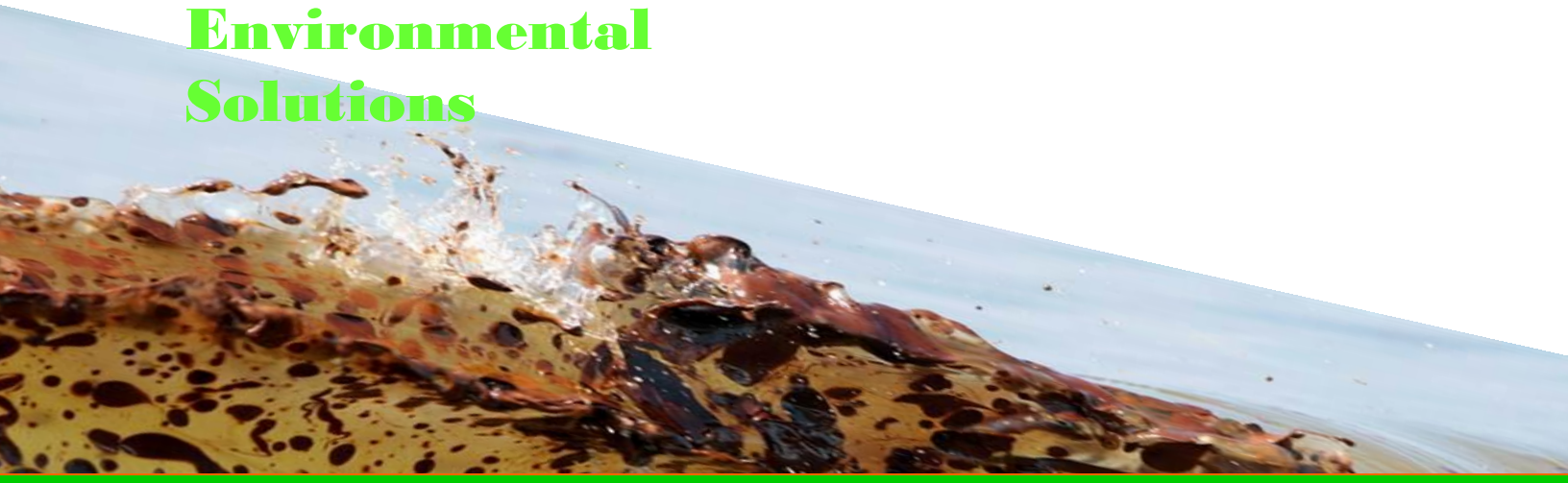
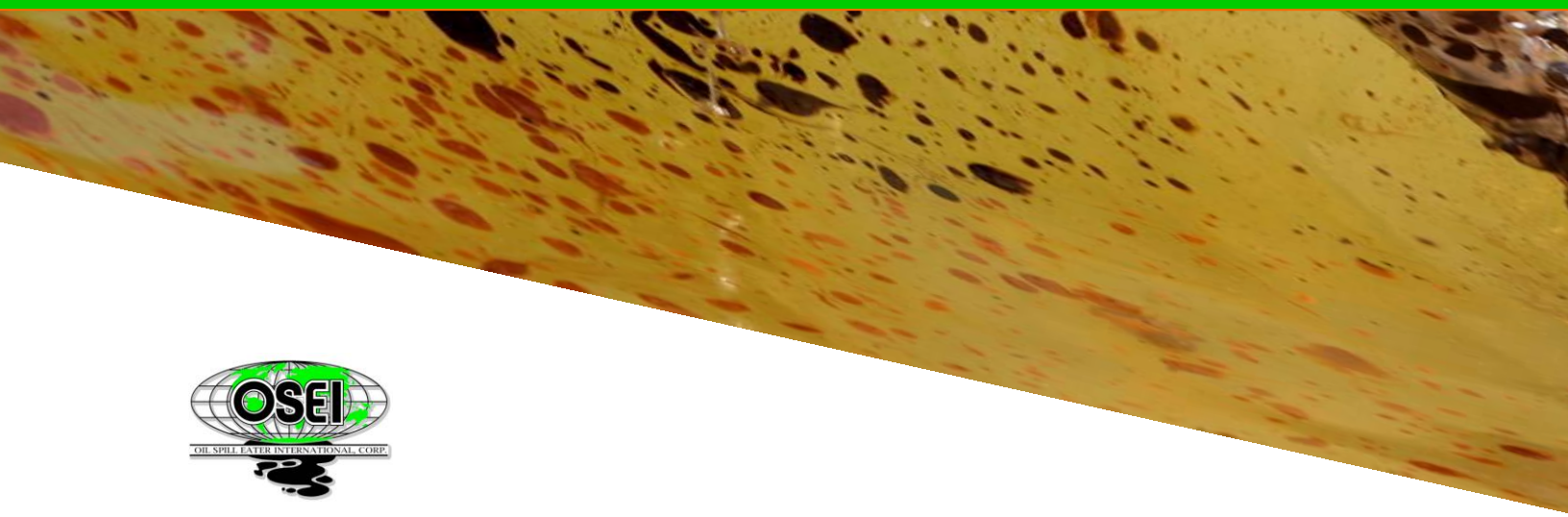
Oil Spill Eater II

Biological Environmental Solutions



OSEII is the first, and only response required to protect responders and the environment.



OSE II is the world's most environmentally safe and cost effective bioremediation process for the permanent removal of hazardous waste, spills and contamination virtually anywhere of any size, large or small.

Marine Oil Spill and Soil contamination

An **oil spill** is the release of a liquid petroleum hydrocarbon into the environment, especially marine areas, due to human activity, and is a form of pollution. Oil spills may be due to releases of crude oil from tankers, offshore platforms, drilling rigs and wells, as well as spills of refined petroleum products (such as gasoline, diesel) and their by-products, heavier fuels used by large ships such as bunker fuel, or the spill of any oily refuse or waste oil. These oil releases contaminating drinking water, causing fire and explosion hazards, diminishing air and water quality, compromising agriculture, destroying recreational areas, and wasting nonrenewable resources.

Dispersants

Dispersants have to sink roughly 40 to 50 % of the oil in less than 30 minutes to be considered an effective dispersant, This is their only mode of action.

- ✓ sinking oil not only has no benefit to the spill clean up but in most cases it re-duce the degradation of spill oil by increasing the toxicity.
- ✓ Dispersant has limited application as it contains enough solvent (2 Butoxy – ethanol) which is toxic but not enough to disperse heavy spill oil and many oth-er type of spill pollution (ROMPE Ref.)
- ✓ Not very cost effective, but very dangerous to the environment cause so many damage to marine life and indirectly to human.

- ✓ the dispersed oil in the water causes the depletion of O2 in the water , which again has an adverse effect upon marine species.
- ✓ the dispersant only made the spill out of sight out of mind and it spreads the initial spill into secondary areas (water column), then a third area the sea bed, to a forth area the shoreline/intertidal zone, causing environmental damage and increase the cost of clean-ing.

Surface Washing Agents (Chemical Cleaning)

Surfactants (soap) merely break the hydrocarbons (oil) into smaller droplets which al-lows the hydrocarbons (oil) to sink or move and can be washed to a different area.

1) Surfactants, after washing or sinking hydrocarbons to a different area, can al-low the hydrocarbons (oil) to recombine or reform in the new area.

2) Surfactants do not contain nutrients, enzymes, vitamins or constituents to complete metabolic life cycles, so it is impossible for surfactants to solve the problem so the can not eliminate, remediate, or permanently solve the problem.

OSEII

OIL SPILL EATER II .

Biological spill oil clean up and soil Bioremediation

OIL SPILL EATER II (hereinafter OSE II) is not a bacteria (bug), fertilizer or dispersant product and it contains exact proportions of enzymes, bio surfactants, nutrients and other necessary constituents for complete life cycles and biodegradation that converts the waste into a natural food source for the enhanced native bacteria found in the environment. The end result of this process is CO2 and water.

OSE II is an environmentally safe cleanup method because it uses natures own bioremediation processes to effectively eliminate hazardous materials.

OSE II is listed on the US Environmental Protection Agency's National Contingency Plan for Oil Spills (NCP).

OSE II is approved by Marine Emergency Mutual Aid Centre (MEMAC) as the first authorized Bioremediation product and listed in Regional Organization for the Protection of the Marine Environment (ROPME)

OSE II will reduce your cleanup costs and permanently eliminate the hazardous waste problem in place, with no secondary cleanup required.

OSE II is the world's most environmentally safe and cost effective bioremediation process for the permanent removal of hazardous waste, spills and contamination virtually anywhere of any size, large or small.

OSE II : Mechanism of action and Privilege .

When OSE II is added to a spill, it is not necessary to wait on the proximal bacteria to release enough enzymes or bio surfactants since they are already supplied by OSE II. Therefore, the minute you apply OSE II, there is sufficient bio surfactants to start the emulsification and solubilization process. This process generally takes just a minute or two, or possibly several more minutes depending on the consistency of the spill. As the bio surfactants do their job, the enzymes are attaching themselves to broken down hydrocarbon structures, forming digestive binding sites.

Note: Once this process has occurred, several important changes take effect:

1. The fire hazard has diminished.
2. The toxicity of the spill is rapidly diminished.
3. The odor or smell is almost non-existent.
4. The oil or spill will no longer adhere to anything.
5. The spill is caused to float, OSE II will prevent the oil from sinking.

If the spill has not reached a shoreline yet, but does so after application, it will not adhere to wildlife, sand, rock, wood, metal, or any vegetation.

If the spill has already attached itself, once application occurs, the spill will be lifted from sand, rock, wood, metal or vegetation and wildlife. **OSE II** is the perfect **solution** for cleaning up oiled wildlife and marine life because it works so swiftly and is **non-toxic**, causing the oil to just easily slough off once sprayed on. This causes less trauma for the animal being cleaned and a much faster and easier cleanup process.

The spill is **detoxified** to the point that indigenous bacteria (natural to a given environmental location) can now utilize the oil as a food source. This also diminishes toxicity to marine organisms, birds or wildlife.

OSE II causes the oil to **float** on the surface of the water, which **reduces** the impact to the sub-surface preventing secondary contamination of the water column or tertiary contamination on the floor of the body of water associated with the spill area. The spill being held on the surface will make it easy to monitor.

OSE II also has an extremely efficient **nutrient** system which is activated once you mix the product with natural water--water native to the spill environment.

While the spill is being broken down and detoxified, the indigenous bacteria already living in the natural water used to mix OSE II starts rapidly colonizing or proliferating the growth of large numbers of indigenous bacteria.

Once the bacteria run out of the OSE II's readily available nutrients, they convert over to the only food source left: the detoxified oil spill. The spill is then digested to CO2 and **water**. In some cases you can see bacteria growing on the spill; however, in a short period of time, the oil will be digested to CO2 and water before your eyes on a contained spill. In laboratory tests, once you see the water in the test beaker or aquarium become turbid, you know it is only a matter of time before the contaminant is remediated to **CO2** and water.

Unlike **mechanical** cleanup, which cleans up a maximum of **20%** of the oil spilled, OSE II will actually address 100% of a spill. This information is substantiated by the EPA's listing of OSE II on the National Contingency Plan for oil spills referred to as the NCP list, which contains the efficacy test performed for the **EPA** at LSU University.

WHERE OSE II HAS BEEN USED

OSE II can be used virtually anywhere that can sustain Microbial Life

- Oceans Marshes – Estuaries
- Lakes Underground Soil
- Rivers, Streams Underground Water
- Where Fresh and Ocean Water Birds, Mammals, Living Creatures Come together (Brackish Water)
- Under Buildings & Immovable Objects All Types of Soil (In-Situ)
- Rocky Areas – Pebbled Areas Animal Clinics
- Kitchens, Restaurants (Grease Traps)

WHO CAN USE OSE II

- Manufacturing Plants that use Governments
- Organic Based Natural Resources
- Fire Departments
- Manufacturing Plants that use Hydrocarbon Based Natural Resources Ports and Harbors (Excellent Dry decking).
- Any Owner, Operator of Engines Homeowners that spill Fuel, Oil,or Robot-ics Pesticides, or Solvents
- All Transportation Groups, Maritime Tank Cleaning,
- Rig washing ,Utility Industry Cleanup Contractors Refineries,
- Cleaning of Storage Tanks,
- Companies, Pipeline Operators (Insurance Adjustors) Drilling Insurance Companies (Drilling mud)
- Clean up of bilge and oil on board ships and boats

OIL SPILL EATER II

Natural solutions to environmental problems compatible with the nature