



Taking care of the world's petroleum problems with responsible, green solutions

INTRODUCTION TO DE-OIL-IT

Engineered to be extremely effective on hydrocarbon oil and lipid fats

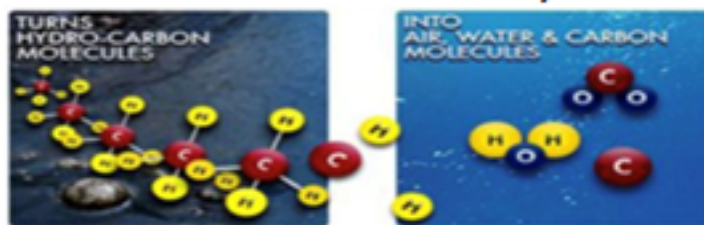
De-Oil-It is an environmentally safe industrial strength degreaser and general-purpose cleaner. It is a non-toxic, non-flammable, non-corrosive system of surfactant and oil solubilizers, which dissolve grease and grime by way of micelle formation.

When De-Oil-It is used in a pressure washer or used with agitation (usually using a scrub brush or a broom), the surface-active agents in De-Oil-It penetrate oil, grease, and grime and cause it to disperse into a colloidal suspension which can be rinsed away from a surface or dispersed by dilution in a body of water.

HOW DOES DE-OIL-IT WORK?

DE-OIL-IT breaks down the oils and lipids into millions of molecular sized particles and will not allow them to quickly regenerate like other detergent type cleaners, making clean up easier and more efficient. When you rub your finger across a surface cleaned with **DE-OIL-IT**, you should be able to feel that it is squeaky clean the first time.

Here's how De-Oil-It breaks down hydrocarbons



DE-OIL-IT works at the molecular level of petroleum breaking ("degrading") its hydrocarbon chains and rendering them no longer bio-available, eliminating the toxicity so natural occurring bacteria in nature can finalize the degrading process. What's left is a natural form of air, water, and carbon leaving the environment clean and safe. **DE-OIL-IT** is approved by the Greenworld Environmental Alliance (<http://GEA.solutions>)

Non-hazardous, cleans better than solvent based cleaners & de-greasers, SAFE for Employees, no special handling with chemical suits etc...required, no foul odors.

As these millions of molecular sized particles of oils and lipids are washed down the drain, they remain broken down for a longer period of time allowing natural biodegrading to occur. The natural biodegrading occurs when microbes attach themselves to these molecular sized particles and are able to consume them, causing them to completely biodegrade.

When most detergents are applied to oils and lipids (greases), they attempt to break down the oils and lipids into molecular sized particles and carry them away with rinsing water.

When you rub your finger across the surface, you can still feel the greasy residue left behind. When it is washed down the drain, the oil or grease reconstitutes causing an oily or greasy mess in the sewage system that cannot biodegrade and that keeps growing as more and more greasy residue is washed down the drain.

Since **DE-OIL-IT** is a non-toxic blend of chemicals which works by colloidal formation to remove oil, grease and grime safely, easily and efficiently, it works differently than solvents or caustic-based cleaners.

DE-OIL-IT may be used at any temperature below 180 degrees Fahrenheit. Whatever the application, we recommend the solution be allowed to stand on the surface at least 15 minutes before agitation and rinsing to permit the colloidal action to work at the recommended solution strength.



Should a stronger solution be desired, it may be used without fear of damage to surfaces because **DE-OIL-IT** contains no harsh chemicals or solvents.

DE-OIL-IT IS SAFE TO USE AND DOES NOT REQUIRE STANDARD EYE PROTECTION OR VENTILATION MEASURES. Should **DE-OIL-IT** concentrate come in contact with eyes, simply flush with clean water. **DE-OIL-IT** has excellent storage stability (in excess of ten years).



It contains no heavy metals, organic solvents, non-biodegradable materials to make waste-water disposal difficult. **DE-OIL-IT** quickly dissolves in hot-or-cold, hard-or-soft, fresh-or-salt water. It has the effectiveness of petroleum solvents without the usual associated fire hazard and negative environmental impact.

Recommended standard mixing dilutions are: 1:10/15 for extra heavy cleaning, 1:20/30 for standard commercial cleaning such as floors,

DE-OIL-IT Technology in Action

What is colloidal micelle?

The heart of this new chemistry which is the key to **DE-OIL-IT** is the technology used to develop a "colloidal micelle."

Sub-microscopic particles are created in a microscopic field similar to a magnetic field. It differs from traditional chemistry in that the molecular attraction is not the usual attraction between positive and negative poles. Rather, it is between like poles.

An analogy would be that negative attracts negative and positive attracts positive. The micelle has a hydrophilic (water seeking) pole and a hydrophobic (water repelling) pole. The hydrophobic poles attract each other, thus forming the interior of the micelle. The hydrophilic poles form a tough outer surface.

When a micelle contained in the **DE-OIL-IT product** comes in contact with a hydrocarbon molecule, the center of the micelle bonds to a similar hydrophobic hydrocarbon. It disrupts the attraction to other hydrocarbon molecules and/or to the surface.



The action of a single micelle is multiplied by billions of other micelles. The molecular level emulsification process penetrates highly viscous and sticky materials namely hydrocarbon based, lifting them from the surface to which they adhere.

Considering the damage inflicted on life and the planet by harsh cleaners and solvents, colloidal chemistry represents an exceptional advance toward environmental preservation and restoration.

DE-OIL-IT Formulas are Non-Toxic Formulas

DE-OIL-IT's formulas are made using the amazing colloidal miscelle chemistry (also known as a nanotechnology). These non-toxic, all natural ingredient formulas can be used for soaps, cleaning and polishing products, personal care products, household products, pet products, industrial products, and natural surfactants.

The big YES's

DE-OIL-IT's basic formulas are all natural, baby safe, biodegradable, effective (95% more effective than their toxic counterpart), extremely soluble, hypoallergenic, non-toxic, water based, and can be used safely in confined areas.

DE-OIL-IT formulas are proprietary, bio-based formulas consisting of, vegetable- and plant-based products, mixed with de-ionized water. All of **DE-OIL-IT's** ingredients are found on the Food and Drug Administration's (FDA) GRAS ("Generally Recognized as Safe") List.

DE-OIL-IT quality. They can be used outdoors on plants, lawns and pavements of all types without endangering the environment and, in many cases, actually enhancing it.

The big NO's

Our basic formulas contain **NO** ammonia, ammonium hydroxide, animal products, artificial ingredients, bleach, chlorine, citric acid, dyes or colors, formaldehyde, hydrochloric acid, isopropyl alcohol, lye, naphtha, nitrobenzene, perchlorethylene, perfumes or fragrances, phenols, phosphates, propylene glycol, sodium hypochlorite, sodium laurel sulfate, synthetic chemicals, thickeners, or trichloroethane.



DE-OIL-IT's

Formulas are pure cleaning products.

NO WARNING

LABEL OF ANY

KIND is required

to be placed on DOI products by any Federal, state or municipal Agencies.

How your company can use DE-OIL-IT formulas

DE-OIL-IT's distributors sell basic concentrates for general use or they can design a formula especially for your specific needs. Already formulated concentrates are available by the gallon, drum, or tanker load. Their Field Service Engineers will evaluate, analyze, and recommend **DE-OIL-IT** products to specifically match your cleaning and environmental goals.

Exciting News for Oil Well Use

Production is increased from half a barrel to as much as 11 barrels per day in Texas oil fields

The "nano-technology" colloidal micelle, the tiny spherical particles of our formulas, form mild solutions that dissolve heavy grease, oil and other hydrocarbons. The dissolved oil becomes bio-degradable and breaks down into nitrate, dissolved oxygen, carbon dioxide and water. A natural fit for the formulas became apparent when the energy crisis encouraged the use of existing, but low-producing, domestic oil wells.

Well Bore Cleaner - As an oil well depletes its production, it is slowed by sand, water-emulsions, waxes and damage done by acid and other stimulation treatments. The ideal flow is possible once the sediment wax emulsions are dissolved by using one of our formulas as a well bore cleaner, which improves the flow substantially. The surface tensions in the formation are made ideal for increased flow and improved oil recovery. If the additive is then squeezed back into the formation, it will dissolve emulsions, re-wet the formation and improve the flow of produced oil even further.

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Rig Wash - As drilling encroaches into environmentally sensitive areas, attention is paid to products being used on drilling locations. The issues may run from federal and State disposal issues, to local disposal wells and illegally dropped waste and contaminated water. There are very limited sources to reclaim or recycle liquid waste and solid waste disposal is an expensive cost.



Rig washing is a necessary part of the drilling operation, not just for safety of the rig floor workers but also for the containment and sustaining the environment around the drill site. In the case of some recent gas plays like the Barnett Shale, drilling rigs are operating in neighborhoods, near schools, city buildings and airports.



As the Rig Wash combines with the drilling fluid, it breaks down the cuttings, oil and bacteria in the water. It will not let the oil portion recoat the drill pipe, rig floor and work areas. The colloid technology essentially breaks down the solids, oil and biodegrades the solids in a biomass.

A 4% solution of one of our formulas used as a rig wash was tested and found to be an effective cleaner even under static conditions. The Rig Wash improves the wash off capabilities by penetrating the mud and lowering the interfacial tension between the liquid and the surface. Cleanup is effective and complete when using pressure wash or agitation. The oil is broken

down to a biomass, safe for disposal. The solution was then diluted 1 part rig wash to 4 parts water and still was as effective as the concentrate.

Multiple use of the cleaner at various concentrations

These are the proposed multi applications of the natural sustainable products and technology:

- Universal Cleaner/Degreaser – 1% active
- Coil tubing cleaner – 4% active
- Engine cleaner – 6% active
- Oil spill and driveway cleaner – 4% active
- Parts cleaner and shop cleaner – 1% active
- Rig wash – 4% active
- Well bore cleaner – 12% active
- Slick water surfactant – 12% active
- Water flood surfactant – 4% active

The product is produced as a 100% concentrate and, while effective as a cleaner in concentrated form, the addition of water significantly enhances the performance of the product.

- **Oil spill cleanup insitu and exsitu**
- **Soil reclamation**
- **Bioremediation**
- **Oil slick dispersant**
- **Refinery waste treatment**
- **Environmentally safe degreaser**

Bioremediation is a process used to clean up soils contaminated with petroleum hydrocarbons and other hazardous compounds. In the bioremediation process, indigenous microbes (biomass) and microbial inoculants degrade contaminants and detoxify the soil. The byproducts resulting from this process are carbon dioxide and water. In short, bioremediation takes contaminated soil and converts the contaminants into non hazardous substances.



Both insitu and exsitu

bioremediation can be carried out at the contaminated site i.e. old gas stations, tank farms, abandoned refineries, pump stations, etc. Soil is placed in containment cells in rows 12 to 18 inches deep. Microbial inoculants, nutrients, biostimulants, water, etc. are applied with the aid of sprinkler apparatus. Devices, located under the soil, recover leached contaminants and provide aeration for the microbes. process, etc.

Oxygen transfer is optimized by tilling the soil at 7 to 10 day intervals depending on environmental conditions, microbial activity, management process, etc.

Bioremediation is an economical and safe method for cleaning up oil spills and bioremediating soils contaminated with petroleum hydrocarbons and dangerous organic compounds. The

bioremediation process utilizes beneficial microbes, surfactants, micronutrients and bio-stimulants to decompose contaminants transforming them into harmless byproducts, i.e. water and carbon dioxide.

The bioremediation process can be performed insitu or exsitu. The insitu process is adopted where excavation is impractical and involves either bio-stimulation or bio-augmentation.

Bio-stimulation involves aeration and the application of selected micronutrients and bio-stimulants. Bio-stimulation is only effective when indigenous microbial populations, present in the substrate, are high enough to degrade the contaminants and when these microbes can readily adapt to foreign contaminants.



Bio-augmentation involves the application of beneficial microbes that have an affinity towards a specific contaminant. Typically, these microbes are suspended by a stabilizing agent and lie dormant in a spore until activated in solution and applied together with micronutrients and bio stimulants.

BIOREMEDIATION can effectively degrade the following contaminants:

- Hydrocarbons with carbon chains ranging from C-5 to C-40
- Benzene, xylene and toluene
- TCE
- PAH
- PCB and other chlorinated compounds
- Fuel oils Fossil fuels - gasoline, diesel, aviation gas
- Condensate - leakage from pipelines
- Glycols

BIOREMEDIATION BENEFITS

- Thorough degradation in a relatively narrow time window.
- Simultaneous multiple activity.
- Toxin resistant.
- Reduced risk / higher degree of safety.
- Reduced labor and equipment costs

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