

DEMULSIFIER



Demulsification (separation of water from crude oil), is one of the most difficult processes on any well program. Management of the crude oil-water mixtures are critical to process operations and an efficient demulsifier will quickly separate these mixtures to maximize value while minimizing operating costs.

A combination of plant based fatty acids and oils in ZenEarth demulsifiers accelerate separation through the strength of proprietary micelle formulas. Each micelle measures from 1 – 5 nanometers and has a hydrophilic (water loving) head with a hydrophobic (oil loving) tail. The hydrophobic tail is attracted to oil and attaches itself to the oil droplet while the hydrophilic head makes the water more slippery. The result is that each micelle collects the oil and quickly rises to the surface for collection.

ZenEarth micelle formulations are known as colloidal solutions. Once introduced and stirred into the crude-water mixture, the micelle will not drop out or settle at the bottom. The mixture will remain suspended and continue to actively seek out oil to bring to the surface without the need for mechanical separation or processes.

Benefits of the ZenEarth Demulsifiers include:

- Separated hydrocarbons from the demulsification process easily re-enter the transportation system without a need for further separation. It will not harm or accelerate the deterioration of various oils already in the network. Helps stabilize pump pressure by removing trapped air and gas.
- Works equally well in brine, salt or fresh water.
- Paraffins and asphaltenes are dispersed in the oil and enter the transportation network without the normal issues associated with this normally viscous product.
- Does not require high temperatures to work effectively and efficiently.
- Cleaner produced water means lower handling and discharge costs.
- No desalting chemicals or salts are used and ZenEarth demulsifiers are an environmentally safe alternative to the various chemicals now in use. Accidental spills of ZenEarth demulsifiers require no special treatment and are non-hazardous.
- Work safe procedures are at a minimum with no special handling procedures required. Demulsifiers do not contain nonylphenols or any other endocrine disruptors or xenoestrogens which are typical to most other demulsifiers.



ZEN EARTH PRODUCTS ARE:

Bio - Based

Readily Biodegradable

Non - Toxic

Non - Corrosive

Non - Hazardous

Non - Caustic

Non - Flammable

Non - Cancer Causing

DO NOT CONTAIN:

Ozone Depleting Substances

Petroleum Distillates

Glycol Ethers

Caustics

California Proposition 65 Chemicals

The active ingredients behind all "green" ZenEarth cleaning, solvent and lubricating products are combinations of various readily biodegradable plants and naturally occurring minerals. ZenEarth's proprietary, renewable, chemical/mechanical process creates a truly unique product that is safe for human use and for the environment. It is effective and versatile.

All ZenEarth active ingredient formulas are effective as a result of the creation of electrically charged particles known as micelle. When activated in water, micelles repel each other in a ceaseless random movement. Measuring only 2 – 4 nanometers in size, their extreme surface-area-to-volume ratio enables far greater efficacy than conventional technologies or formulas. Micelles do not produce a chemical reaction that generates new compounds when introduced into another material or the environment, instead they break down carbon based compounds into smaller particles that can be easily assimilated and metabolized by normal soil or water microorganisms.