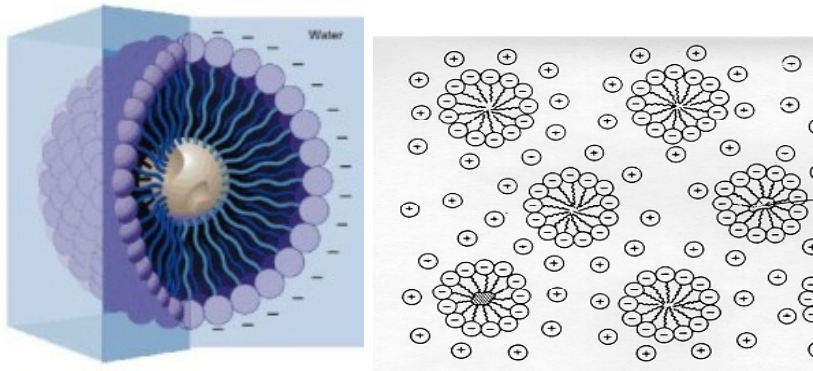


## ***Colloidal Chemistry Technology***

WISE cleaners and bioremediation technology comes from a type of advanced materials science known as colloidal chemistry. Renewable, food grade ingredients are processed to form a nano-sized particle called a micelle. The micelle's small particle size (1-4 nanometers), combined with its extremely high surface area to volume ratio enable it to penetrate complex carbon molecules and emulsify organic matter. Micelles are activated when mixed with sufficient amount of water such that each micelle is then completely surrounded by a thin layer of water molecules. The outer hydrophilic shell aggressively searches for and bonds with water molecules, making them hyper-mobile.

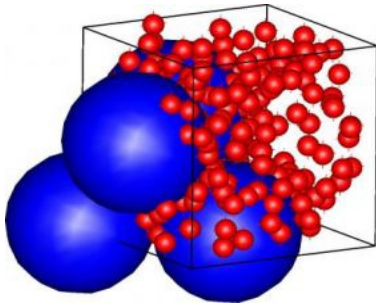


The head of the micelle is hydrophilic, meaning it likes water, while the interior portion is hydrophobic, meaning it avoids water. This provides a way to dissolve molecules that do not like water, in water.

### ***How Do Colloidal Micelles Work?***

Colloidal micelles work to breakdown long chain hydrocarbon bonds in fats, oils, and grease and hold them in suspension when mixed with water.

Individual colloidal micelles, at the nano-scale, repel each other like opposing



magnets while attracting solid particles and breaking down hydrocarbon bonds into smaller molecules and/or atoms. Once solid particles have attached themselves to the colloidal micelle, the micelle holds them in suspension, preventing re-soiling from occurring and safely allowing FOG to be permanently dissolved in water. The wash off is completely bio-degraded and becomes soil constituents such as nitrate, dissolved oxygen, carbon dioxide, biomass and

water. Mixed together in a very diluted water solution, colloids drastically reduce surface tension and work as a dispersing agent that carry other active ingredients more effectively than common surfactants.

## *Advantages of Using Colloidal Micelles, a Clean Technology*

In practice, colloidal micelles have a number of sharp advantages over ordinary formulations. Most cleaning and bioremediation products contain just surfactants and emulsifiers which may do a good job of lifting fats-oils-greases (FOG), but leave hazardous hydro-carbons intact to run off and continue to contaminate. Also, the quick degradation of organic waste causes a significant reduction of offensive odor caused by the naturally slow process of decay, and reduced organic residue will cause a diminution in population of disease carrying insects. Most importantly, when used with specific natural, non-ionic surfactants, emulsifiers, FOG dissolving and sequestering agents, the colloidal micelles work together to produce an extremely powerful, effective, and affordable solution that requires no expensive OSHA or safety training.

The formulated ingredients are protected as a proprietary trade secret pursuant to Occupational Safety and Health Agency (OSHA) Standard CFR-1910 1200. Because it contains no ingredients considered hazardous by OSHA, it is exempt from the requirement of listing ingredients on the label. The ingredient list has been reviewed by the US EPA.

The chemical family from which the ingredients are derived includes:

- alkanolamines
- amino acids
- corn oil
- non-ionic surfactants
- plant based fatty acids
- organic alcohol in a base of colloidal micelles

The various blends contain extracts from plants such as cactus, coconuts, corn, grain, grass, potatoes, rice, soy, trees, minute amounts of natural or nonionic surfactants and pure water.



When they work, non-toxic and sustainable products are preferred by both industrial customers and end consumers. Toxicity is becoming increasingly important and health and safety concerns have mainstreamed. The limitation has been restricting or eliminating toxic ingredients but still getting the job done. WISE colloidal products **do not** include:

- Petroleum distillates
- Glycol ethers

- Terpenes
- Synthetics
- Metasilicates
- Builders and reagents
- Caustics
- Aldehydes
- Sulfonates
- Borates

To informed consumers, safely avoiding this list of known toxins is at least as important as what an effective product does in fact contain.

### *Marine Applications: Spill Cleanup, Bilge and Ballast Tanks*

Our non-toxic cleaning and bioremediation products quickly emulsify and encapsulate fuel spills, suppressing VOC's and rendering flammable fuels non-flammable almost instantly, preventing ignition or re-ignition of fuels and oils during spill cleanup. These products also eliminate slippery decks from fuel residues, and is equally effective with fresh, salt and brackish water.

When added to bilge water it rapidly eliminates both vapors and odors associated with diesel fuel and gasoline. In the event of a spill, our bioremediation solutions will emulsify and encapsulate the fuel, eliminating the vapor release of fuel floating on bilge water thus decreasing or eliminating the danger of fuel explosions and fire. Additionally, when applied to bilge or ballast water, these products continuously clean all surfaces contacted and breaks down scum lines and other residues. These solutions are compliant with OPA 90 as a deck side emulsifier, quickly eliminating oily residue and slickness commonly associated with oil and fuel deck side spills.



In effect, by breaking the hydrocarbon chains, these products emulsify and thus leave no oily sheen or "slick" on the surface. Further, they leave behind no toxic trace ingredients as do most cleaning, degreasing, and bioremediation products on the market today.

### *Fire Fighting & Vapor Suppression*

In the event of a fire, WISE fire suppressant products will emulsify and encapsulate the hydrocarbon, creating a non-flammable solution. It is effective for use in bilge areas, uneven platforms, in high wind and high seas applications, and can also eliminate airborne vapor in confined spaces. These products can be used on Class A & Class B fires, with no special nozzle required. The flames rapidly collapse inward; a demonstration video is available.

## *Water Treatment and General Cleaning & Degreasing*

General cleaning and degreasing is simplified by eliminating hazardous solvents, caustic and corrosive chemicals. For example, these solutions quickly clean turbocharger intake filters and other hardworking machinery. In food processing or a ship's galley, general use of these products on all surfaces will help keep drain lines clear and eliminate the foul odors associated with grease traps and grey water holding tanks. Food processing water treatment is a snap.