



PTS™
ADVANCED

PTS Advanced – 100% Biodegradable Non-Ionic Surfactant with Micro- & Macro- Nutrients for Biostimulation and Hydrocarbon Bioremediation

Benefits Include

Solubilize LNAPL and residual LNAPL for more rapid biodegradation

Rapid source reduction at low permeability sites

100% soluble for better injection ROI

Surfactant enhanced bioremediation product comprised of the most advanced sustainable and biodegradable surfactant blend resulting in accelerated biodegradation of petroleum hydrocarbons, fuel oxygenates, polycyclic aromatic hydrocarbons, chlorinated benzene and many more contaminants in soils, groundwater, and surface water environments. The U.S. EPA SaferChoice registered surfactants contain hydrophobic and hydrophilic properties, making them ideal for solubilizing hydrophobic compounds, reducing the interfacial tension of water and increasing the efficiency of remediation.



Applications

In-Situ Bioremediation:
Direct push injection in groundwater or Injection - Extraction Flushing

Recirculation systems are significantly improved with PTS Advanced to target NAPL beneath buildings or other limited access areas.

Gasoline, Diesel and other Fuel oils

Crude Oil and Refined Fuel Spills in oceans, rivers, and on-land

Combined with petroleum degrading bacteria (PTBac™)

Limits:

5-7

Specifications:

Non-ionic biodegradable EPA Safer Choice surfactants and supplemental nutrients

For Environmental Applications of Soil, Water and Groundwater Remediation:

Surfactants enhance many remediation applications including bioremediation, chemical oxidation, dual and multiphase extraction, groundwater recirculation systems and most important, LNAPL and residual NAPL remediation. More often, the best approach is a combined approach of 2 or more of the above options. While no one solution works best for all situations as a stand-alone approach, many approaches are effective for petroleum hydrocarbons and proper use of surfactants can provide performance enhancements for mass removal and contaminant reduction in soil and groundwater.

PTS Advanced™ works in conjunction with **PTS™** and delivers an ecologically safe and non-toxic surfactant blend specifically tailored to enhance the solubilization and emulsification of petroleum hydrocarbons that increases the bioavailability of the hydrocarbons for native bacteria or in combination with bioaugmentation.

PTS™ was designed to enhance biological degradation processes but it also facilitates degradation in mechanical remediation systems such as SVE, DPE, MPE and Air Sparge because those systems help induce oxygen and the bacteria still need **PTS™** to increase the rate of biodegradation resulting in faster cleanup.

Target Contaminants

- Petroleum Hydrocarbons:**
- BTEX- Benzene, toluene, ethylbenzene, xylenes
- MTBE- Methyl tert-butyl-ether
- GRO- Gasoline Range Organics
- DRO- Diesel Range Organics
- ORO- Oil Range Organics
- Polycyclic Aromatic Hydrocarbons (PAHs)

Injection of PTS Advanced™ and PTS™ can be done easily as they are 100% soluble and ready to inject. They are diluted with clean water or groundwater and injected into the contaminated groundwater zone using an injection-extraction approach within the same wells or employing a recirculation approach across an area with multiple wells, as well as “gravity feed” applications. They are non-corrosive to underground structures or piping systems, biodegradable and non-toxic, so safe to use at active facilities and gas stations.

Bioaugmentation: PTS™ can be combined with petroleum degrading bacteria **PTSBac™** for faster results.

Technical design support and reliable customer services available to all customers.