

Proven results:

Crude Oil: "A single application at a rate of 2.5 gallons/yd³ reduced hydrocarbon petroleum leachability by 72% to satisfy minimum standards. No soil removal or further treatment required."

PCB Transformer Oil: "Results revealed a decline from the original concentration of 920,000 ppm PCB to an average of 5,665 ppm PCB in the gel layer – a reduction of 99%. Only a residueal percentage of 83 ppm remained in the aqueous phase."

Petroleum Hydrocarbons in soil:

"Treatment stabilization using Frelo Hydrocarbon Converter shortened job completion by at least six weeks with a reduction in treatment costs of approximately \$122/yd³."

Diesel & Semi-Volatile Organic Compounds: "An average decline of 59% for the semi-volatile compounds and 68% reduction of diesel. The study has shown that the mobilities of selected organic compounds are effectively reduced when treated with Frelo Hydrocarbon Converter."

Gasoline in Water: "After gradual addition and mixing of Frelo Hydrocarbon Converter to the gasoline/water mixture, with aeration and agitation: a 98% reduction BTEX (34 ppm). Since the level of Benzene measured .0.5 ppm, the treated liquid was pumped and discharged into the city waste treatment facility by city employees."

Oil Refinery Waste Sludge: "TPH reduction percentages were 48%. Similar results were obtained from sludge-contaminated soils; TPH was reduced by 45% ... thereby reducing the cost for treatment."

Hydrocarbon Spill on Hwy. 31: "Initial TPH levels were found to be 3,900 ppm and following treatment were reduced to ,10 ppm. All visible evidence of a hydrocarbon spill was eliminated."



How it works:

The mechanism of silicate solution based reactions with hydrocarbon molecules follows a series of catalytic conversions at the paraffin/cycloparaffin/aromatic groups to form reverse catalysis products such as glycerol. The silicates act as a catalyst for the restructuring of side chain radicals on the hydrocarbon molecule, thus changing its characteristic "fingerprint" with the silicate remaining only slightly changed but being precipitated from solution as a harmless organo-silicate material. Well aerated reactions go to completion faster.



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For oil, gas,
fuel oil, grease,
creosote,
sludge or other
hydrocarbon
clean up jobs

Hydrocarbon Converter



Photographs courtesy of Daystar Environmental



Non-toxic. Renders residue
environmentally safe.

Hydrocarbon Converter

Frelo Hydrocarbon Converter is a specifically blended silicate-based liquid that will reduce hydrocarbons upon contact when applied to impacted soils, surfaces and groundwater. Frelo Hydrocarbon Converter has been successfully used in the “catalytic conversion” of organic environmental contaminants with minimal effort and application techniques. When applied to impacted soil, a minimal reaction time renders the contaminant irreversibly altered and the contaminant, if hazardous, no longer possesses its chemical fingerprint. The compound that forms is an organo-silicate residue with the consistency and makeup of sand. Treated soils are rendered more amenable to reclamation.

Frelo Hydrocarbon Converter is a blend of environmentally friendly compounds, which display no hazardous waste characteristics either by ignitability, corrosivity or reactivity. The product is not altered chemically and will not form harmful intermediates when blended with hazardous chemicals. Frelo Hydrocarbon Converter conforms to “non-hazardous substances” defined under the Clean Water Act, RCRA, the Clean Air Act, and TSCA. It is not a carcinogen and is not listed on OSHA, IARC, or NTP Monograms. It also passes the 48-hour Acute Toxicity Bioassay at 12.5% concentration for both fathead minnow and Daphnia pulex.

**Renders waste
and residue
environmentally
friendly**

BEFORE	AFTER
	
CASE STUDY: Drilling Yard Remediation	
LOCATION: South Louisiana	
CONTAMINANT: Petroleum Hydrocarbons	
MATRIX: Soil	
RESULTS: Reduction in TPH content, with final concentrations ranging from 23 to 30 ppm for the soil and 16 ppm for the mat.	

BEFORE	AFTER
	
CASE STUDY: Meyerhauser Wood Treatment Plant	
LOCATION: DeQueen, Arkansas	
CONTAMINANT: (PAH) Creosote	
MATRIX: Soil	
RESULTS: Results obtained were comparable to a 7-12 month bioremediation treatment scheme. The magnitude of results were obtained in less than 2X of the total time required for controlled biological mechanisms.	

From the oil fields in Kuwait to Joe's garage in Hope, Arkansas - From engine repair stations in rail yards in Louisiana to leaking transformers in Georgia ...

Frelo Hydrocarbon Converter does a remarkable job of making the contaminated water or soil environmentally safe. Frelo's use of a biogenic process, a process covered by two U.S. patents whereby rice is used to form sodium silicate and is then combined with oxygenated and ionized water to complete our proprietary formulations, breaks down the hydrocarbon elements and renders them harmless. In all past cases, contaminated water was allowed to be disposed of in local sewers or drainage systems. Contaminated soil was determined to be safe - no removal or further remediation required. Aeration, agitation or soil mixing may be required, depending on the scope of the job. Frelo has also proven effective as a sealant to stop the leaching of pre-treated lumber, including railroad ties treated with creosote. As a degreaser on engines, concrete or other applications, Frelo is particularly unique in that it renders the residue environmentally safe. On ground or water, Frelo Hydrocarbon Converter does the job quickly and efficiently.

Eliminates the need for costly soil removal and/or replacement.

**A NON-TOXIC,
PLANET-FRIENDLY
SOLUTION THAT
REDUCES COSTS AND
SAVES TIME.**

PERFECT FOR:

- Oil Spills
- Fuel Oil Leakage
- Transformer PCB
- Gas Spills
- Crude Oil
- Oil Sludge
- Creosote
- Coal Oil Drilling
- Industrial Locations
- Gas Stations
- Marine Ports
- Engine Repair Shops
- Railroad Ties