



Solid-Phase Treatment of Soils and Sediments

Daramend® *In Situ* Chemical Reduction (ISCR) Reagent represents a superior treatment technology for solid materials impacted by recalcitrant organic compounds. Since the first application in 1991, variations of the technology have been successfully used to treat millions of tons of soil, sediment and other solid materials. Daramend has treated soils containing chlorinated herbicides and pesticides, organic explosive compounds, and chlorinated VOCs at many sites throughout the world.

The Daramend technology is uniquely advantageous because it can often be applied *in situ* without excavation, is typically applied at less than 5 wt % of dry soil mass, and provides the ISCR benefits of very strongly reducing conditions (both biotic and abiotic degradation mechanisms), and near-neutral pH. Relative to traditional composting, Daramend treatment results in significantly shorter treatment durations and eliminates bulking. From a sustainability perspective, because the Daramend reagent is composed of recycled iron and agricultural byproducts, the technology offers many benefits over “dig-and-dump” approaches.



The benefits of Daramend

- Improved soil health: Improves soil tilth and fertility, and reduces toxicity
- Hydrophilic character: Increases soil water holding capacity
- Balanced range of nutrients: Provides a broad range of major, minor and micronutrients
- Recalcitrant contaminants: Promotes remediation of most persistent contaminants in soils

Application methods

- *In situ* landfarming
- *Ex situ* treatment cells or windrows
- Shallow groundwater trench and excavation backfill applications

Examples of Contaminants of Concern

ORGANIC EXPLOSIVES
TNT, RDX, HMX, Tetryl,
Nitrobenzene

CHLORINATED VOCs
Ethenes, Ethanes, Methanes

CHLORINATED PESTICIDES
Dieldrin, Toxaphene, Mirex,
Chlordane, DDT, HCH,
and others

For more information and detailed case studies please visit our website.