



A Sodium Persulfate - Based *In Situ* Chemical Oxidant with Built-In Activation

DESCRIPTION

PersulfOx™ is an *in situ* chemical oxidation reagent that destroys organic contaminants found in groundwater and soil through powerful yet controlled chemical reactions. PersulfOx is a sodium persulfate (Na₂S₂O₈) - based technology which employs a uniquely patented catalyst to enhance oxidative destruction of both hydrocarbon and chlorinated contaminants in the subsurface.

Traditionally, sodium persulfate is activated with the addition of heat, chelated metals, hydrogen peroxide, or base in order to generate sulfate radicals. These activation processes are inherently complex, costly and can pose additional health and safety risks. In comparison, PersulfOx is a relatively safe and easy-to-use ISCO agent.

In short, PersulfOx contains a built-in catalyst which activates the persulfate component and generates contaminant destroying free radicals without the need for the addition of a separate activator.

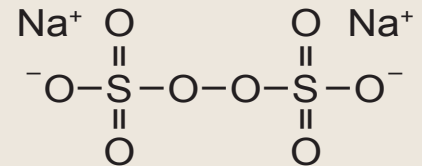


FIGURE 1:
SODIUM PERSULFATE CHEMICAL STRUCTURE

FEATURES & BENEFITS

- Promotes rapid and sustained *in situ* oxidation of a wide-range of organic contaminants
- Provides a unique catalytic surface on which oxidants and contaminants react in a process known as “surface mediated oxidation.”
- Contains built-in activation: eliminates complex and potentially hazardous chemical addition required to achieve traditional persulfate activation
- Fewer health and safety concerns than with use of traditional activation methods such as heat, chelated metals, hydrogen peroxide or base
- Single component product results in simplified logistics and application. No additional containers and/or multi-step mixing ratios required prior to application
- Contaminant oxidation performance equivalent to best alternative persulfate activation methods

FUNCTION

PersulfOx is an all-in-one product that provides powerful and highly efficient chemical oxidation performance. It is easily mixed with water and applied into the contaminated matrix using subsurface injection techniques or soil mixing tools.

The PersulfOx catalyst is a silica based, microscopic surface on which oxidants and contaminants can come together and react in a distinct process known as “surface mediated oxidation.” During this process, oxidation reactions occur repeatedly on the surface of the catalyst serving several contaminant-reducing functions:

- The generation of sulfate radical and other oxidizing species
- Accelerated oxidation through the adsorption of contaminant molecules and other oxidizing species
- Catalyzes direct and free-radical-mediated oxidation by sodium persulfate

The equation below shows the net complete oxidation of toluene, a constituent of gasoline, by PersulfOx:



For a Free Consultation and Application Design for the use of PersulfOx visit www.regenesisis.com



REGENESIS

Advanced Technologies for Contaminated Site Remediation