



Terra Systems Sodium Persulfate For In Situ Chemical Oxidation (ISCO)

Terra Systems sodium persulfate is a powerful chemical oxidant used for In Situ Chemical Oxidation (ISCO). It can be activated with ferrous sulfide and injected into the groundwater to rapidly produce the oxidative radicals $\text{SO}_4^{\bullet-}$ and OH^{\bullet} and the reductive $\text{O}_2^{\bullet-}$ radical. Unactivated sodium persulfate can be used for some contaminant mixtures. Sodium persulfate is soluble up to 575 g/L at 25 °C.

Multiple radicals result in the rapid destruction of compounds like:

- BTEX
- MTBE
- Petroleum hydrocarbons (TPHs, GRO, DRO)
- Polyaromatic hydrocarbons (PAHs)
- Chlorinated ethenes (TCE, PCE, DCE and vinyl chloride)
- Chlorinated ethanes (TeCA, TCA, and DCA)
- Chlorinated methanes (carbon tetrachloride, chloroform, and methylene chloride)
- 1,4-dioxane
- Pesticides

Activated persulfate is frequently used to treat chlorinated solvents in a *treatment train approach* along with Terra Systems patented family of SRS[®] (slow release substrate) emulsified vegetable oil substrates.

Key Communication Points

- Safe activation methods are available such as ferrous sulfide
- Ideal for the remediation of source areas and hot spots that require rapid treatment
- Lower pH injection fluids result in greater safety for the injection crew
- Provides extended activation of the persulfates in groundwater
- Easy to inject

Dosage and Application

The specific reagent delivered to the customer is formulated based on site conditions to meet their specific treatment goals. These formulations are developed based on contaminant(s) of concerns, ORP, pH, site geology, and soil oxidant demand. Typical dosages are 0.1 pound of activator per pound persulfate.

The injectate is a liquid that is compatible with a variety of application methods including:

- Bucket mixing
- Pug milling



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- In-situ mixing
- Direct injection.
- Soil blending
- Fixed well injection

Packaging Options

- 55-pound bags

Chemical Properties

Property	Sodium Persulfate
CAS-No	7775-27-1
Physical Form	Crystalline Solid
Color	White
Odor	None
Relative Density	2.59 g/cm ³
Solubility in Water	575 g/L 25 °C
pH	6.0 SU (1% Solution)