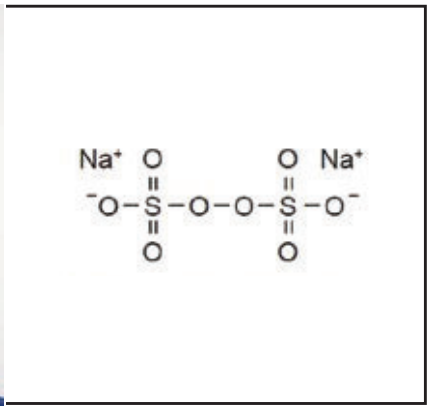
Technical data

Activated sodium persulfate



Description

Activated Sodium Persulfate is an advanced in situ chemical oxidation reagent (ISCO) that destroys organic contaminants found in groundwater and soil through abiotic chemical oxidation reactions. It is an all-in-one product with a built-in catalyst that activates the sodium persulfate component and generates free radicals that destroy contaminants without the costly and potentially dangerous addition of a separate activator.

Features

Sodium persulfate has the following characteristics that make it an ideal reagent for the oxidative destruction of both petroleum hydrocarbons and chlorinated pollutants in the subsoil:

- Promotes rapid and sustained in situ oxidation of a wide range of organic contaminants.
- Contains a built-in catalyst that remains active throughout the life of the persulfate oxidation reaction.
- The catalyst also eliminates the need for co-application of alternative and potentially hazardous activation chemicals.
- Fewer health and safety concerns than using traditional activation methods such as heat, chelated metals, hydrogen peroxide, or base.
- Single component product results in simplified logistics and application
- No additional containers or multi-step mixing ratios required prior to application.
- Compatible with combined approaches to remedies that include enhanced biodegradation.

PARAMETER	TYPICAL VALUE	UNITS
Formula	Na2S2O8 + Na2SiO3	-
Vapor pressure	0	$N.m^{-2}$
Appearance	Polvo blanco sin olor	-
pH	7,0 – 11,5	-
Chemical classification	5.1 Oxidizer	-

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Operation

Typically, sodium persulfate is activated with the addition of heat, chelated metals, hydrogen peroxide, or base in order to generate sulphate radicals. These activation processes are complex, expensive, and can pose additional health and safety risks. The use of sodium silicate as a catalyst makes persulfate a relatively safe and easy to use ISCO agent. Sodium persulfate utilizes a unique silica-based microscopic surface on which oxidants and contaminants can bind and react in a distinct and efficient process known as "surface-mediated oxidation."

During this process, oxidation reactions occur repeatedly on the catalyst surface serving several contaminants to reduce their functions:

- The generation of radical sulphate and other oxidizing species.
- Accelerated oxidation through the adsorption of polluting molecules and other oxidizing species.
- Catalyses direct oxidation mediated by free radicals by sodium persulfate.

Applications

Activated sodium persulfate is used for remediation of soil and groundwater by chemical oxidation in situ or ex situ for the treatment of petroleum hydrocarbons (BTEX, GRO, DRO, creosote, MTBE, ETBE, TBA), chlorinated compounds (chlorinated solvents, tetrachloroethylene, trichlorethylene, cis-1,2 Dichloroethylene, vinyl chloride, chloroethane and carbon chloride) and ethers (1,4-Dioxin).

Activated sodium persulfate is mixed with water at a rate of 5% to 20% before application. For most applications a 10-15% solution is recommended. The resulting mixture has a viscosity similar to that of water. Injections can be done by direct push, injection wells or other injection systems.

Warnings and recommendations on prevention and safety

Like any strong oxidant, activated sodium persulfate must be handled with care. Protective equipment during handling should include face shields and / or goggles, rubber or plastic gloves, and rubber or plastic apron. If clothes look stained, wash immediately; spontaneous ignition can occur with cloth or paper. In cases of significant exposure, use the appropriate NIOSH-MSHA dust or mist respirator. For more details do not hesitate to consult our SDS.

Storage

For storage, the reagent must be kept in hermetically closed original containers. Store in a well-ventilated place. Do not store near combustible materials. Store away from incompatible materials. Recommended to store below 40ºC. Provide adequate exhaust ventilation in places where dust forms. For more details do not hesitate to consult our SDS.

Delivery format

20 kg bags

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