



In-Situ Remediation Product Summary

Offering Anaerobic and Aerobic Bioremediation and Chemical Oxidation Remediation Solutions

PCE - TCE - Perchlorate - TeCA - Nitrate - TCA – Freon 113 - DNAPL - Chromium⁶⁺ - TNT - BTEX

Product	Differentiation	Application	Benefit
SRS®-SD EVO	Small droplet emulsified vegetable oil (EVO); nonionic emulsifier	Remediation of chlorinated solvents and TNT in aquifers with low groundwater flow rate (<180 feet per year (ft/yr))	Maximum radius of influence (ROI); longevity
SRS®-STA EVO	Viscosity decreases as injection pressure increases	Remediation of chlorinated solvents and TNT in heterogeneous aquifers	Increased distribution in heterogeneous formations
SRS®-FRL EVO	Large droplet EVO with anionic emulsifier	Remediation of chlorinated solvents and TNT in aquifers with high groundwater flow rate (>180 ft/yr), proximal to streams, rivers or estuaries or in permeable reactive barriers (PRBs)	Maximum retention; longevity
SRS®-SE EVO	100% fermentable carbon with an extended shelf life	Homogeneous formations and/or biobarriers and PRBs	Increased oil retention/lower radius of influence; lower shipping costs
SRS®-M EVO	Small or large droplet SRS® with 10 - 50 g/L food grade abiotic reductant	Remediation of mixed plumes of chlorinated solvents and reducible metals like hexavalent chromium (Cr ⁶⁺)	Simultaneous reduction of chlorinated solvents and Cr ⁶⁺ ; longevity
SRS®-NR EVO	Large droplet EVO with anionic emulsifiers	Remediation of nitrate and perchlorate in high groundwater flow rate sites (>180 ft/yr)	Maximum retention; longevity
SRS®-C EVO	Custom formulation specified by consultant	Remediation of chlorinated solvents and TNT	Optimized for source and diffuse plume treatment
EZVI (license agreement with NASA)	Combination of soybean oil, surfactant, water, and fine microscale (2 or 4 µm) Zero Valent Iron (ZVI)	Anaerobic biodegradation and abiotic reduction of DNAPL chlorinated solvents and Freon 113; PRBs	Improved injectability (DPT or wells); longevity and ROI over other carbon/ZVI combinations
SRS®-ZVI (license agreement with Provectus)	Patented SRS® EVO and 10-40% microscale (2 µm, 4 µm, <44 µm or <125 µm) ZVI	Anaerobic biodegradation and abiotic reduction of DNAPL chlorinated solvents and Freon 113; PRBs	Improved injectability (DPT only for >4 µm); longevity and ROI over other carbon/ZVI combinations
QRS® and QRS®-Plus	Sodium or potassium lactate without or with nutrients	Remediation of chlorinated solvents	Fast acting for groundwater remediation
TSI DC® <i>Dehalococcoides mccartyi</i> (DHC)	>1 x 10 ¹¹ DHC cells/L	Remediation of chlorinated solvents	Required when DHC or vinyl chloride (VC) reductase genes are not in sufficient numbers
TSI DC®-TCA <i>Dehalobacter</i> (DHB)	>1 x 10 ¹¹ DHB cells/L	Trichloroethane to chloroethane or carbon tetrachloride and chloroform	Required when <i>Dehalobacter</i> are not present in sufficient numbers

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pH buffers, nutrients, Vitamin B ₁₂ , sodium ascorbate	NA	Standalone products for optimizing site conditions	Optimize pH; condition water for microbe injections
CPO	Calcium Peroxide	Aerobic biodegradation of BTEX and other petroleum products	Slow release oxygen source
TSI-SPS™ Sodium Persulfate	Safe activation method; ease of mixing and liquid injection; can be used without activation for some contaminants	Source areas and hot spots; oxidation of BTEX, MTBE, and petroleum hydrocarbons (TPHs, GRO, DRO), polyaromatic hydrocarbons (PAHs) and chlorinated solvents (ethenes, ethanes and methanes)	Lower pH activation; extended activation life
TSI-KPS™ Potassium Persulfate	Safe activation method; ease of mixing and slurry injection; can be used without activation for some contaminants	Source areas, hot spots and PRBs; oxidation of BTEX, MTBE, and petroleum hydrocarbons (TPHs, GRO, DRO), polyaromatic hydrocarbons (PAHs) and chlorinated solvents (ethenes, ethanes and methanes)	Lower solubility for extended reactivity; lower pH activation; longevity
TSI-FSA™ Ferrous Sulfide	Blend of structured iron sulfide and other compounds; not as readily affected by site geochemistry	Cost- effective activator for persulfates in groundwater	Ease of storage and handling; increased safety for the injection crew; safe - low-toxicity fluid

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