

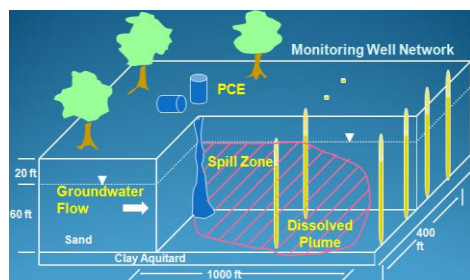
60% Potassium Lactate “Injection Ready” QRS™ -PL Substrate Package For Aquifer Remediation and Conditioning

Why use 60% QRS™ -PL potassium lactate?

60% QRS™ -PL potassium lactate is an inexpensive, soluble, food grade and fast acting substrate, which rapidly establishes reducing conditions to support the biodegradation of chlorinated solvents and is often used in some areas of Florida and California, which have restrictions on the amount of sodium that can be injected.

What is the anaerobic bioremediation process?

The anaerobic bioremediation process uses microorganisms to degrade chlorinated solvents such as tetrachloroethene (PCE) and trichloroethene (TCE). An organic substrate is added to the groundwater to generate reducing conditions and provide the necessary carbon and hydrogen to support biodegradation of the chlorinated solvents.



What are the best applications for 60% QRS™ -PL potassium lactate?

60% QRS™ -PL potassium lactate has been successfully deployed at U.S. military installations, industrial sites, chemical plants, and dry cleaners across North America for:

- Aquifer remediation of chlorinated solvents
- Conditioning of the aquifer before an SRS® emulsified vegetable (EVO) injection
- A biobarrier to quickly cutoff plume migration onto adjacent properties
- Certain pesticides/herbicides
- Nitrate
- Perchlorate
- RDX
- Immobilization of metals such as hexavalent chromium.
- Ideal substrate for fast-track projects when demonstrating short-term results are critical.



What are the benefits of using 60% QRS™ -PL potassium lactate?

- Terra Systems 60% QRS™ -PL potassium lactate is often used in some areas of Florida and California, which have restrictions on the amount of sodium that can be injected.
- It's less expensive per gallon than a long lasting carbon substrate like Terra Systems SRS® family of patented emulsified vegetable oil substrates.
- Its low viscosity and high solubility in water allow for rapid transport with groundwater, which enhances distribution in the aquifer and minimizes the number of injection points.
- Delivered to your site "injection ready" in 5-gallon buckets, 55-gallon drums, or 275 gallon IBC totes with a protective metal cage.
- Simply dilute with water and inject into the formation via permanent injection wells or direct push methods.
- Effective for both dissolved phase and DNAPL source area treatment.
- The U.S. Food and Drug Administration have designated 60% QRS™ -PL potassium lactate as Generally Recognized As Safe (GRAS).
- **Optional** nutrient and Vitamin B₁₂ package is available for enhanced in-situ bioremediation (see QRS™ -PL -Plus data sheet)

Table I: Ingredients in 60% QRS™ -PL potassium lactate

Ingredient	CAS#	Percent
Potassium Lactate	85895-78-9	60
Water	7732-18-5	40

Photo: Terra Systems Manufacturing Plant and Treatability Lab



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