

AquaZVI Specification Sheet

AquaZVI Technical Description

AquaZVI™ is an *In Situ* Chemical Reduction (ISCR) reagent that promotes the destruction of many organic pollutants and is most commonly used with chlorinated hydrocarbons. It is engineered to provide an optimal source of micron-scale zero valent iron (ZVI) that is both easy to use and delivers enhanced reactivity with the target contaminants of concern via multiple pathways. AquaZVI will stimulate anaerobic biological degradation by rapidly creating a reducing environment favorable for reductive dechlorination. In many cases this improved formulation of ZVI can also destroy contaminants through a direct chemical reaction, see Figure 1.

AquaZVI is composed of colloidal, sulfidated zero-valent iron (ZVI) particles suspended in an aqueous medium with environmentally-acceptable, proprietary dispersants. The passivation technique of sulfidation, completed through proprietary processing methods, provides unparalleled reactivity with chlorinated hydrocarbons like PCE and TCE, and increases its stability and longevity *in situ* by minimizing undesirable side-reactions.

In addition to superior reactivity, AquaZVI is designed for easy handling that is unmatched by any ZVI material on the market. Shipped as an aqueous suspension, AquaZVI requires no powder feeders, no thickening with guar, and pneumatic or hydraulic fracturing is not mandatory. When diluted with water in the field, the resulting suspension is easy to mix and inject using direct push or injections wells.

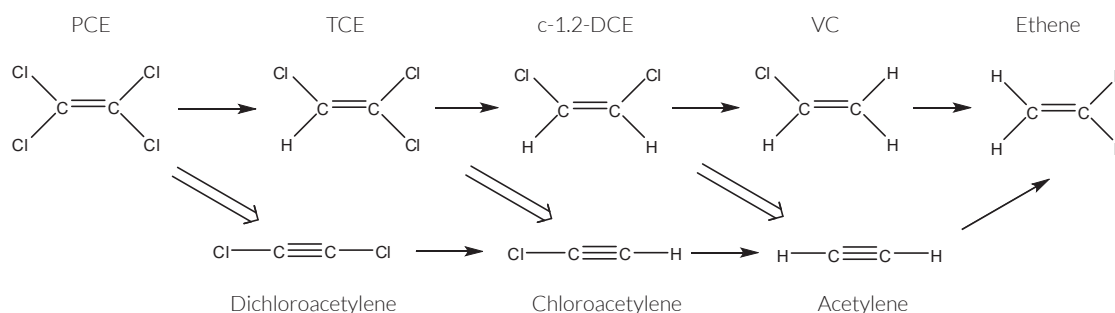


Figure 1. Example of chlorinated ethene degradation pathways and products. The top line with single-line arrows represents the reductive dechlorination (hydrogenolysis) pathway. The downward facing double-arrows represent the abiotic beta-elimination pathway.

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Chemical Composition

Iron, powders CAS 7439-89-6
Iron(II) sulfide CAS 1317-37-9

Properties

Physical State: Liquid
Form: Viscous metallic suspension
Color: Dark gray
Odor: Slight
pH: Typically 7-9 as applied
Density: 14 lbs/gal

Storage and Handling Guidelines

Storage:

- Use within two weeks of delivery
- Store at temperatures above freezing and below 95°F
- Store in original containers
- Store away from incompatible materials

Handling:

- Never mix with oxidants or acids.
- Wear appropriate personal protective equipment
- Do not taste or swallow.
- Observe good industrial hygiene practices.

Applications

AquaZVI is diluted with water on site and easily applied into the subsurface through low-pressure injections. AquaZVI can also be mixed with products like 3-D Microemulsion® or PlumeStop® prior to injection.

Health and Safety

Material is relatively safe to handle; however, avoid contact with eyes, skin and clothing. OSHA Level D personal protection equipment including: vinyl or rubber gloves and eye protection are recommended when handling this product. Please review the Safety Data Sheet for additional storage, usage, and handling requirements here: AquaZVI SDS.



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