



**ZVI**  
ZERO VALENT IRON

*Zero Valent Iron – High quality and purity iron powder and granules for soil and groundwater remediation including injections into groundwater, water treatment systems, and permeable reactive barrier applications.*

**Benefits Include**

- Proven remediation technology since 1970's
- Applicable in soil piles and insitu applications for groundwater treatment
- Combine with Emulsified Vegetable Oil or carbon substrates to enhance bioremediation applications
- Can combine with MTS for mixed contaminant plumes with metals and organics

**Proven Field Applications**

- Permeable reactive barriers (PRBs) and Funnel and Gate
- Direct Push Injection of micron scale particles into groundwater zone
- Trenching and aggregate scale particles PRB design
- Deep Soil Mixing
- Hydraulic Fracturing

**Applicable to Treatment of many contaminants including:**

- Chlorinated Solvents  
PCE, TCE, DCE  
And degradation products  
Other chlorinated compounds

**Heavy Metals**

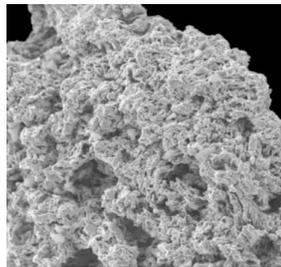
- Arsenic
- Selenium
- Hexavalent Chromium (CrVI)
- And other heavy metals

**Other COCs**

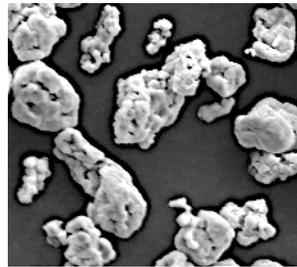
- Cyanide
- Nitrate
- Uranium
- Technetium
- Pesticides (DDT, DDD, and DDE)

C.E.R.E.S. Zero Valent Iron (ZVI) is produced by different methods including water atomization, reduced iron (Sponge Iron), and hydro metallurgical processes with iron content up to 99% with no appreciable surface oxides. Many soil and groundwater remediation projects have been successfully completed since 2015 after single injection or mixing events. Experience and results matter most!

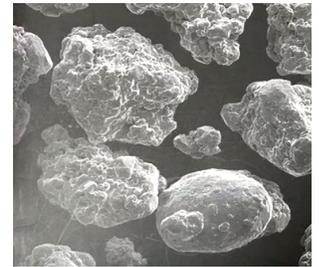
Sponge Iron



Hydrometallurgical



Water Atomized



Material	% Composition	Physical Properties
Iron	up to 99%	Form: Fine Powder to aggregate
Carbon	minimal %	Density: 1.7-3.6 g/cm <sup>3</sup>
Silicon	minimal %	Color: Gray

**ZVI Sizes and Associated Applications**

MICRO ZVI OPTIONS

- 44-210  $\mu\text{m}$  Atomized- Micro 100
- 30-200  $\mu\text{m}$  Sponge- Micro 100
- 74-425  $\mu\text{m}$  Atomized- F1
- 124-500  $\mu\text{m}$  \* Atomized or Sponge- F2
- 100-2,000  $\mu\text{m}$  Sponge- PRB
- 124-2,000  $\mu\text{m}$  Sponge/Atomized- PRB
- \*Commonly used for water treatment systems.

ULTRA-FINE ZVI POWDER

- Hydrometallurgical ZVI
- 4  $\mu\text{m}$  (2500 Mesh)
- 15  $\mu\text{m}$  (1100 Mesh)

MICRO-FINE ZVI POWDER

- 35  $\mu\text{m}$  (325 Mesh) Sponge
- 74  $\mu\text{m}$  (200 Mesh)\*
- 105  $\mu\text{m}$  (140 Mesh)\*
- \*Available in sponge or atomized

Other options available to meet specific design criteria.

*We love made to order opportunities. Let us help you!*