



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

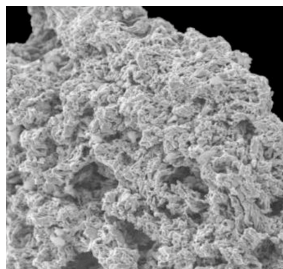
Arsenic
Selenium
Hexavalent Chromium (CrVI)
And other heavy metals

Other COCs

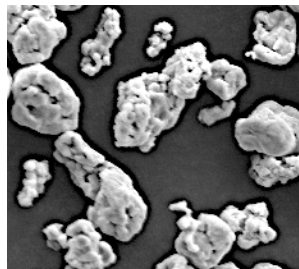
Cyanide
Nitrate
Uranium
Technetium
Pesticides (DDT, DDD, and DDE)

C.E.R.E.S. Zero Valent Iron (ZVI) is produced by different methods including water atomization, reduced iron (Sponge Iron), electrolytic and hydro metallurgical processes with iron content up to 99% and 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!

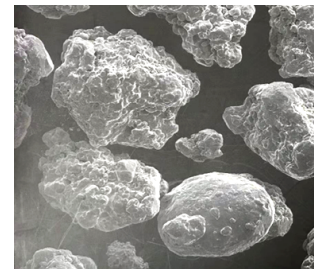
Sponge Iron



Hydrometallurgical



Water Atomized



<u>Material</u>	<u>% Composition</u>	<u>Physical Properties</u>
Iron	up to 99%	Form: Fine Powder to aggregate
Carbon	minimal %	Density: 1.7-3.2 g/cm ³
Silicon	minimal %	Color: Gray

ZVI Sizes and Associated Applications

MICRO ZVI OPTIONS

- 30-74 μm Sponge- Micro 200
- 10-100 μm Atomized- Micro 200
- 44-210 μm Atomized- Micro 100
- 30-200 μm Sponge- Micro 100
- 74-425 μm Atomized- F1
- 124-500 μm * Atomized or Sponge- F2
- 100-1,000 μm Sponge- PRB
- 124-1,000 μm Sponge/Atomized Mix- PRB

ULTRA-FINE ZVI POWDER

- Hydrometallurgical or Electrolytic Iron
- 4 μm (2500 Mesh)

FINE ZVI POWDER

- 10-15 μm (1200 Mesh)
- Sponge or Electrolytic
- 35 μm (325 Mesh) Sponge
- Range: 10-45 μm

Other options available to meet specific design criteria.

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