

Zero Valent Iron ZVI



ENVIROZVI

Zero Valent Iron (ZVI) is a high quality and purity iron powder used for water treatment or conditioning, permeable reactive barriers and other soil remediation applications. Especially indicated for the treatment of chlorinated solvents, heavy metals, cyanides and pesticides.

Features

ZVI is a product manufactured from 100% recycled virgin iron waste material with an iron content greater than 92% and a low content of carbon and other residues.

The characteristics of the ZVI are:

- Promotes the anaerobic bioremediation processes of chlorinated compounds.
- Remediation technology proven since the 70's.
- Applicable in soil collection and in-situ applications for groundwater treatment.
- Economical solution compared to other available products.
- Can be combined with MTS for mixed metal and organic contaminant plumes.

Operation

Zero valent iron (ZVI) particles have demonstrated their high capacity to react with -degrade, adsorb, or transform-a wide range of contaminants in soils and groundwater, such as chlorinated solvents, heavy metals, pesticides, etc. ZVI has been shown to be successful in in situ chemical reduction (ISCR) for the treatment of contaminated water. The reagent generates strong reducing conditions and promotes biotic and abiotic dechlorination reactions.

Iron is made up of ferrous iron (Fe + 2) which can form a variety of iron minerals (e.g. magnetite and pyrite) capable of reducing contaminants as they oxidize to the ferric state (Fe + 3) through an electron transfer. Ferric ion can be "recycled" back to ferrous as long as other electrons are available from indigenous carbon. The expected longevity of the product is 2 to 3 years depending on site conditions.



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Zero Valent Iron ZVI

PARAMETER	TYPICAL VALUE	UNITS
Type	FG 0300/1000	-
Granulometry	300 – 1000	µm
Colour	Black powder in the form of needles	-
Density	6,7 – 7,2	kg/L
Apparent density	2,8 – 3,4	kg/L
Solubility	Insoluble	-
(Typical chemical analysis)	C: 2,8 – 3,2 % Si: 1,8 – 2,1 % P: 0,04 – 0,4 % Cr: 0,05 – 0,4 % Ni: 0,05 – 0,3 % Al: 0,01 – 0,1 % Fe: 92%	-

Applications

ZVI is used in different field applications including permeable reactive barriers (PRB), funnel and gate systems, direct push injections of micrometric particles into groundwater, excavations and mixing with deep soil. ZVI is a reactive compound that acts for a long time as a source of electrons, allowing anaerobic bioremediation processes in situ. This product allows the water treatment of:

- Chlorinated solvents such as PCE, TCE, TCA, DCA, CCl₄, chloroform, and methylene chloride.
- Chlorobenzenes, including di and tri-chlorobenzene.
- Explosive compounds such as TNT, DNT, HMX, RDX, nitroglycerin and perchlorate.
- Most pesticides, including DDT, DDE, dieldrin, 2,4-D, and 2,4,5-T.
- Chlorofluorocarbons.
- Nitrate compounds.
- Chromium.

Delivery format

20 kg. bags.



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