LightEnvironmental

Worldwide experts in wastewater treatment

Heavy Metals Removal: Adsorbents

ABOUT US

Light Environmental, Inc. is a full-service solution provider for state-of-the-art wastewater treatment and water recycling systems. We lead the Water Treatment Industry with our cost-effective solutions.

CONTACT INFORMATION

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For more information on LEI adsorbents, please contact

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- Arsenic
- Lead
- Zinc
- Mercury
- Uranium
- Copper
- Highest level of arsenic (III & V) and heavy metals removal
- Lowest interferences compared to ferric options
- Comprehensive solutions for point of use, point of entry, and point of treatment applications
- Complete technical support and customer service by the scientists and engineers who invented the technology

In January of 2006, the U.S. Environmental Protection Agency mandated by law that all water systems meet the new arsenic standard of 10 parts per billion. As a result, removal of arsenic, lead, and other heavy metals from water supplies has become a top priority for municipalities, small community water systems, schools, state, and federal regulators.

Compliance with the new law governing drinking water will take an unparalleled combination of political foresight, financial resources, cost-effective technology, and common sense to ensure that the new EPA and individual states' standards are met.

At Light Environmental we've developed the removal products and methods that can help you meet (and in many cases) exceed these challenges and improve water quality in the future. Regardless of whether you're a government official, corporate officer, engineer, OEM, or consumer, we have the products and methods to help you now.

Our innovative and field-proven technology can help you meet present and future needs on a cost-effective basis.

Filtration | Separation | Purification

LEI Adsorbent

Effective, Low-Cost Adsorbent for Removal of Heavy Metals

LEI ADSORBENTS

LEI adsorbents can remove all the metal contaminates listed to non-detect or to a set regulatory level. These contaminates are seen often in industrial production of products where metals are a primary ingredient or naturally occurring; for example, in mining, power plants, remediation projects to name just a few.

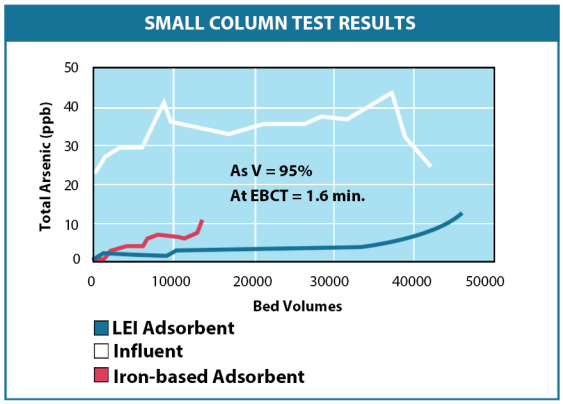
After time, the level of contamination grows and these metals exceed EPA RCRA standards which in turn become a regulated characteristic waste, requiring clean-up and disposal.

REMOVAL OF HEAVY METALS & MORE

LEI adsorbents have become a common product in remediation applications where ground water, maybe contaminated from leaking storage tanks in process applications, surface waters that also may contain AFFF where a serious fire occurred or PFAS where the operations of a manufacturing operation generate polyfluoroalkyl substances & metals, with the combination of LEI's adsorbent and AFFF or PFAS removal resin the water can be reused or discharged over incineration which in many cases is not necessary and these treatment processes reduce the volume of waste that must be disposed.

LEI Adsorbent Specifications

Granular	
Appearance	*White granules*
Moisture Content	*<10%*
Bulk Density	*0.65 grams per cc (40 lb/ft³) milliliter*
Other	*Free Flowing*
Particle Size	*-16/+60 U.S. mesh (other sizes available)*



Comparison of LEI adsorbent with iron-based adsorbent.

Adsorbents utilize a patented material to adsorb both forms of arsenic as well as a wide range of contaminants in water. Empty bed contact times as low as 10 seconds achieve high removal efficiecies. The material affords a higher capacity and a lower level of ion interference than competitive iron and alumina based products.

The media's adsorptive capacity is 7-12 grams of arsenic per kilogram of the adsorbent in drinking water applications with a pH range of 6.5-8.5. Much higher adsorptive capacities have been measured, up to 400 g/kg, in industrial treatment applications.

Adsorbent Product Features/Benefits

- Removal of heavy metals to meet drinking water standards
- High adsorbent capacity requiring less frequent replacement
- Fast kinetics to work effectively at high flow rates
- Non-hazardous disposal as solid waste

Contaminants

- Arsenic III
- Arsenic V
- Cadmium
- Copper
- Antimony
- Lead
- Mercury
- Uranium
- Zinc
- Selenium

Applications

- Commercial and industrial treatment units for drinking water or contaminated water
- Municipal water treatment
- Carbon blocks
- Remediation sites with metal contaminants
- Surface water application
- Many mining operations

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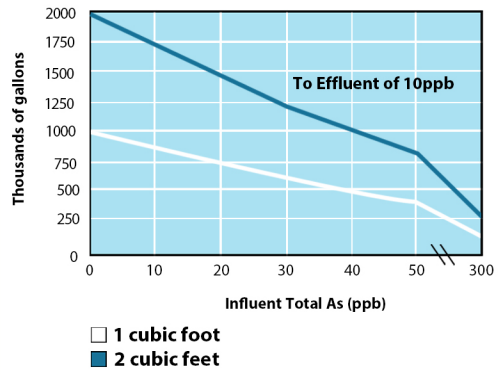
BATCH TEST DATA - ADSORPTIVE CAPACITY LEI

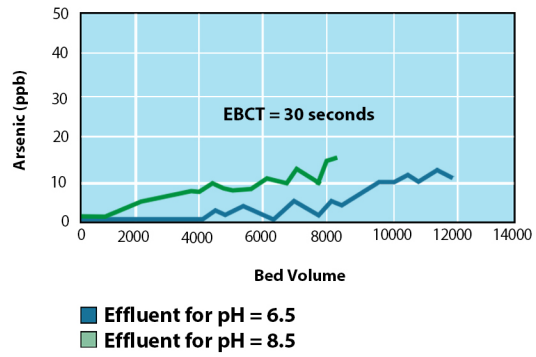
Metal	Initial Concentration	Final Concentration
Arsenic V	*50 ppb*	*<2 ppb*
Arsenic III	*50 ppb*	*5 ppb*
Cadmium	*1,000 ppb*	*24 ppb*
Copper	*500 ppb*	*5 ppb*
Lead	*1,000 ppb*	*18 ppb*
Mercury	*500 ppb*	*26 ppb*
Zinc	*500 ppb*	*12 ppb*

ARSENIC TREATMENT CAPACITY VS. ARSENIC INLET LEVELS



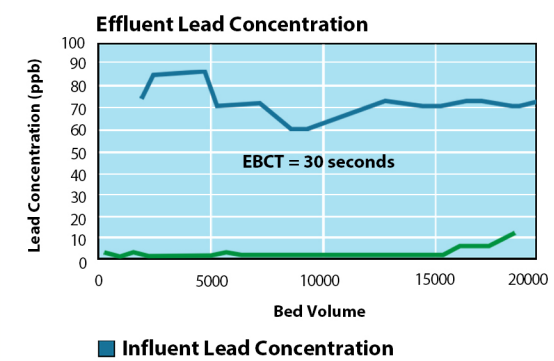
Treatment capacity as a function of tank size.

ARSENIC REMOVAL DATA - NSF 53



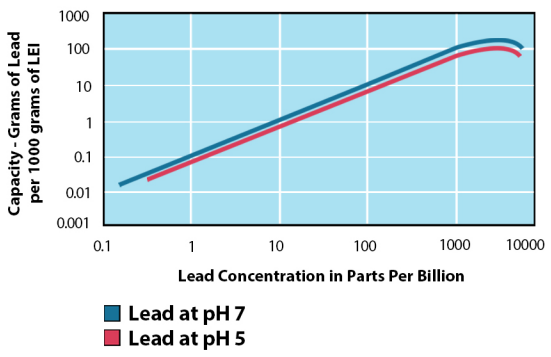
Testing was done under the conditions specified by the NSF Standard 53 for Arsenic. Results at a pH of 6.5 and a pH pf 8.5 are shown in the graph above.

LEAD REMOVAL COLUMN DATA



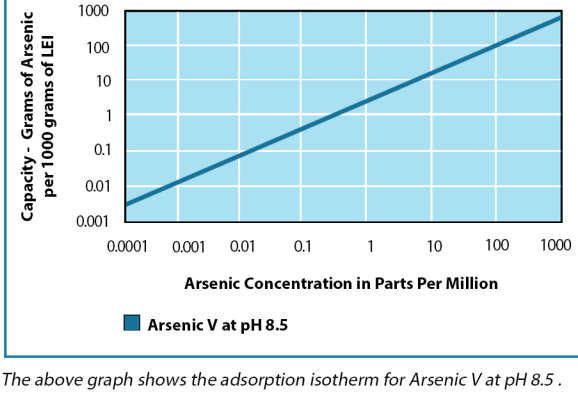
Lead removal by LEI adsorbent in column test; 30 seconds EBCT.

LEAD ADSORPTION ISOTHERM



Adsorption isotherms for lead between pH 5 and 7 are nearly identical.

ARSENIC ADSORPTION ISOTHERM



The above graph shows the adsorption isotherm for Arsenic V at pH 8.5 .

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OUTPERFORMS COMPETITIVE PRODUCTS

LEI adsorbents and resin treatment outperforms competitive products and minimizes the volume of material needed to stabilize or treat the metal or contaminate providing waste minimization a dictate of the US EPA.

MARKETS SERVED

LEI is a SBA approved woman-owned business serving US government agencies and various military branches by providing our system design to engineering firms, product production facilities, and oil and gas refineries.

System designs can meet drinking water standards or a required treatment standard for the application.

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LEI Adsorbent

LEI - Heavy Metal Adsorbent Media Contaminant Removal Efficiency

LEI can provide the necessary treatment trains insuring non-detect on metals removal and more.

Metal	Initial Concentration		% Removal
Arsenic+5	50	ppb	99.99
Arsenic+3	50	ppb	99.99
Lead	1,000	ppb	99.2
Copper	500	ppb	99.5
Uranium	100	ppb	99.3
Mercury	500	ppb	97.4
Cadmium	1,000	ppb	98.9
Antimony	500	ppb	99.1
Zinc	500	ppb	99.5

LEI adsorbent is highly effective adsorbent that removes Arsenic III & V, and a wide variety of heavy metals including Lead, Chromium, Selenium, Uranium and Vanadium from aqueous sources.

Member of:

NSF INTERNATIONAL STD 61 D040211

American Water Works Association
The Authoritative Resource on Safe Water℠

Water Quality Association

Rural Water Association

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