



Graver Technologies

Filtration | Separation | Purification

MetSorb® HMRG

Effective, Low-Cost Adsorbent for Removal of Heavy Metals

MetSorb® HMRG and HMRP 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 efficiencies. The material affords a higher capacity and a lower level of ion interference than competitive iron and alumina based products.

MetSorb® HMRG media's adsorptive capacity is 7-12 grams of arsenic per kilogram of HMRG 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
- Nonhazardous disposal as solid waste

Contaminants

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

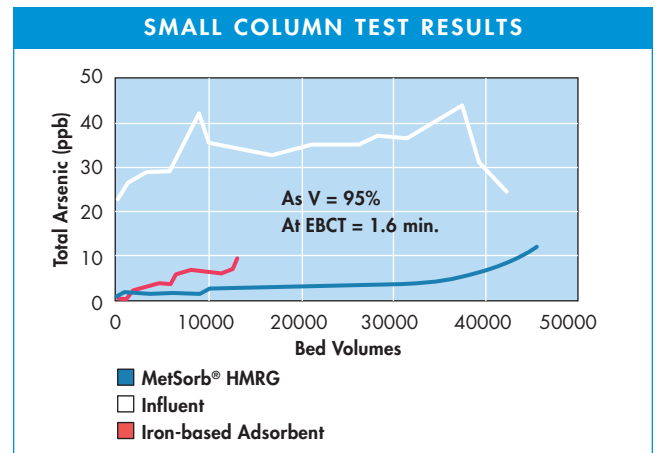
Applications

- Commercial and industrial treatment units for drinking water or contaminated water
- Municipal water treatment
- Carbon blocks
- Cartridges for pitchers
- Faucet mounted and countertop devices
- Household point of entry treatment units



MetSorb® HMRG Adsorbent Specifications

HMRG Granular	
Appearance	White granules
Moisture Content	<10%
Bulk Density	0.65 grams per cc (40 lb/ft ³) milliliter
Other	Free Flowing
Particle Size	-16/+60 U.S. mesh (other sizes available)

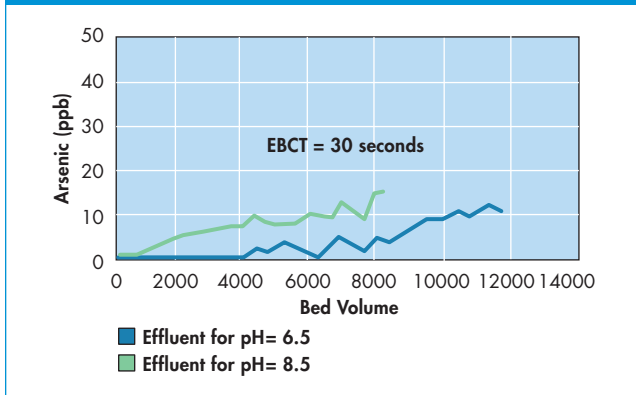


Comparison of HMRG adsorbent with iron-based adsorbent.

BATCH TEST DATA-ADSORPTIVE CAPACITY MetSorb® HMRG

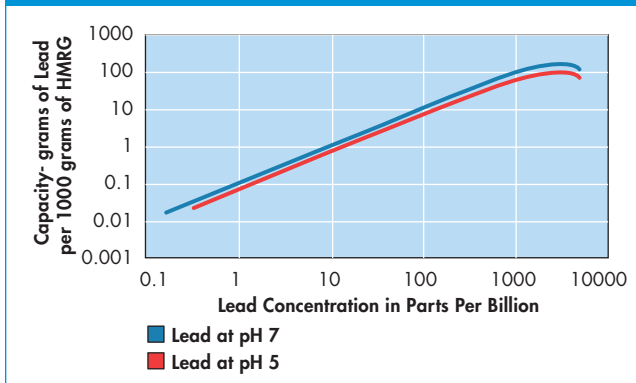
Metal	Initial Concentration	Final Concentration
Arsenic V	50 ppb	<2 ppb
Arsenic III	50 ppb	5 ppb
Cadmium	1,000 ppb	24 ppb
Copper	500 ppb	5 ppb
Lead	1,000 ppb	18 ppb
Mercury	500 ppb	26 ppb
Zinc	500 ppb	12 ppb

ARSENIC REMOVAL DATA - NSF 53



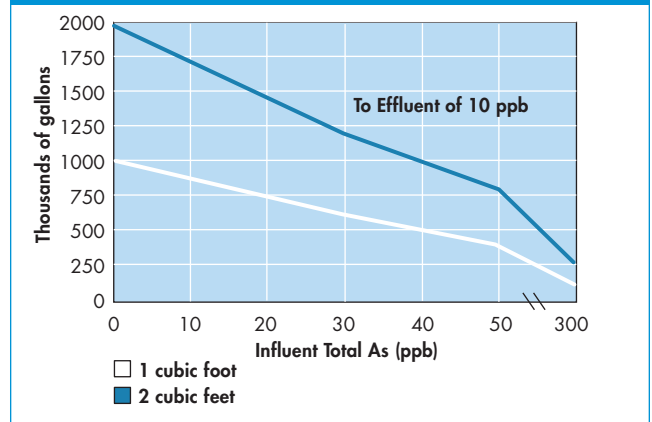
Testing was done under the conditions specified by the NSF Standard 53 for Arsenic. Results at a pH of 6.5 and a pH of 8.5 are shown in the graph above.

LEAD ADSORPTION ISOTHERM



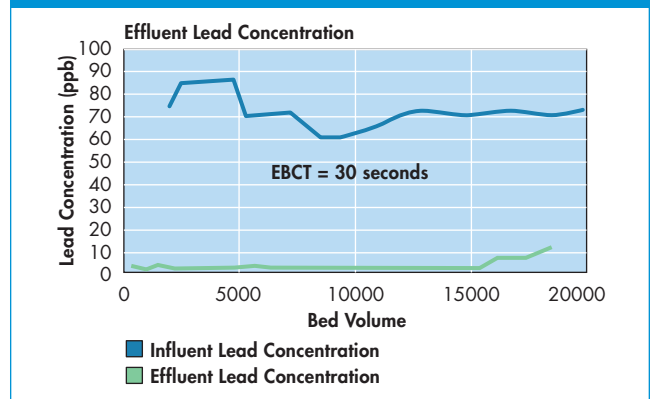
Adsorption isotherms for lead between pH 5 and 7 are nearly identical.

ARSENIC TREATMENT CAPACITY VS. ARSENIC INLET LEVELS



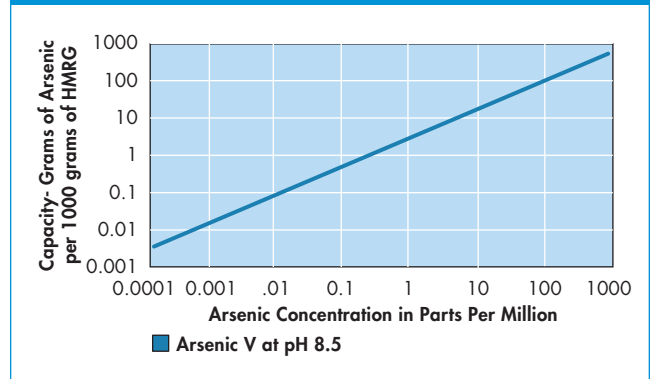
Treatment capacity as a function of tank size.

LEAD REMOVAL COLUMN DATA



Lead removal by MetSorb® HMRG adsorbent in column test; 30 seconds EBCT.

ARSENIC ADSORPTION ISOTHERM



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

For more information

MetSorb® HMRG Customer Service: 1-800-533-6623

Member of:



Water Quality Association

Rural Water Association



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