

MAR Systems' Sorbster™ Media

A FASTER, CHEAPER, GREENER Water Treatment Solution

MAR Systems offers customers an economical and environmentally safe solution for removing metal contaminants such as mercury from water.

MAR Systems' core technology is its Sorbster™ brand of products, a media that provides clients the opportunity to cost-effectively reduce industrial discharges to the environment and clean up legacy contamination issues, thereby mitigating the conflict that has historically occurred between industry and the environment.

Through MAR Systems' ongoing R&D efforts, the company has developed an innovative, proprietary process that reduces mercury concentration in water streams to below detectable limits.

The same technology has shown reductions in a variety of other heavy metals.



SORBSTER™ MEDIA FEATURES/BENEFITS:

- Removal of metals to meet/exceed permit regulations
- Less frequent replacement required due to high adsorbent capacity
- Works effectively with high flow rates
- Passes TCLP test, creating non-hazardous disposal option

CONTAMINANTS REMOVED:

- **Mercury** **Selenium** **Arsenic**
• Chrome Lead Zinc Vanadium

APPLICATIONS:

- Commercial and industrial treatment units with contaminated water
- Municipal water treatment
- Flue gas desulfurization
- Waste water treatment
- Process streams

MAR Systems' Sorbster™ Media Specifications

Appearance	Brick-colored granules
Moisture Content	<10%
Particle Size Range	250-500 microns
pH Range	2-12
Apparent Density	57 lbs./ft ³
Flow Flux Rate	5 gpm/ ft ²



MAR SYSTEMS

MAR Systems Inc.

30625 Solon Road, Unit G
Cleveland, OH 44139

440.505.0962 | info@marsystemsinc.com
www.marsystemsinc.com

MAR Systems' Sorbster™ Media

Case Studies

MOBILE DEVELOPMENT UNIT GROUND WATER

Goal: To Reduce Hg Concentration from 3,500+ppt to less than 100ppt.

Utilizing a number of contacting devices, a slip stream of two gallons per minute (gpm) was used for testing. Ground water stream, fed from a pump was supplied to the MDU by a single, 1" plastic pipe from the discharge of the well. The feed water was distributed to each of the units in the MDU based on flows established as suitable for testing. Stream was brown in color with some suspended solids.

pH Range: 6-9

Outcome: Pre-coat filter followed by packed bed canister with 1,500 grams of media reduced Hg from 3,500+ppt to 20ppt.

CONTAMINATED STORM WATER RUNOFF TREATMENT

Goal: To Reduce Hg Concentration from 1,000ppt to less than 250ppt.

Stream is storm water runoff from a treatment pond for chemical company manufacturing potassium hydroxide, chlorine, anhydrous potassium carbonate and liquid potassium.

pH Range: 5-9

OUTCOME: The initial concentration of the composite was 495ppt analyzed via Method 245.1. The final concentration after treatment was 37.2ppt analyzed via Method 1631.

PROCESS WATER

Goal: To Reduce Hg Concentration from 14,000ppt to less than 100ppt.

Stream came from chemical company specializing in chlor alkali products, including: chlorine and caustic soda, sodium hydrosulfite, hydrochloric acid, hydrogen, potassium hydroxide and bleach. Stream also contained alumina, barium, chromium, nickel, titanium, zinc and other metals.

pH Range: 2-6

Outcome: 87.8% reduction seen after first column analyzed via method 245.1. The Hg concentration after third column was 22.6ppt (99% removed) analyzed via Method 1631.

ULTRA LOW TESTING

Goal: To Reduce Hg Concentration from 3-5ppt to less than 1.3ppt.

The effluent stream came from municipal water treatment facility.

pH Range: 5-7

Outcome: After using Sorbster media, Hg was reduced from 2.9ppt to an average of .93ppt through 5,536 bed volumes. The media did not run to exhaustion and dropped the Hg concentration as low as .54ppt (Method 1631).

REFINERY TREATED WASTE WATER - MERCURY

Goal: To Reduce Hg Concentration to less than 1.3ppt.

pH Range: 7.4

Outcome: Influent water for Hg concentration was 227ppt reduced to 1.26ppt.

REFINERY TREATED WASTE WATER – SELENIUM

Goal: To Reduce Se Concentration to less than 10ppb.

pH Range: 7.4

Outcome: Influent water for Se concentration was 115ppb reduced to 6.5ppb.



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