Sorbster®

Ecologically Effective Contaminants Adsorption

Successful Selenium Removal from Coal Fired Power Plant Tailing Pond Water

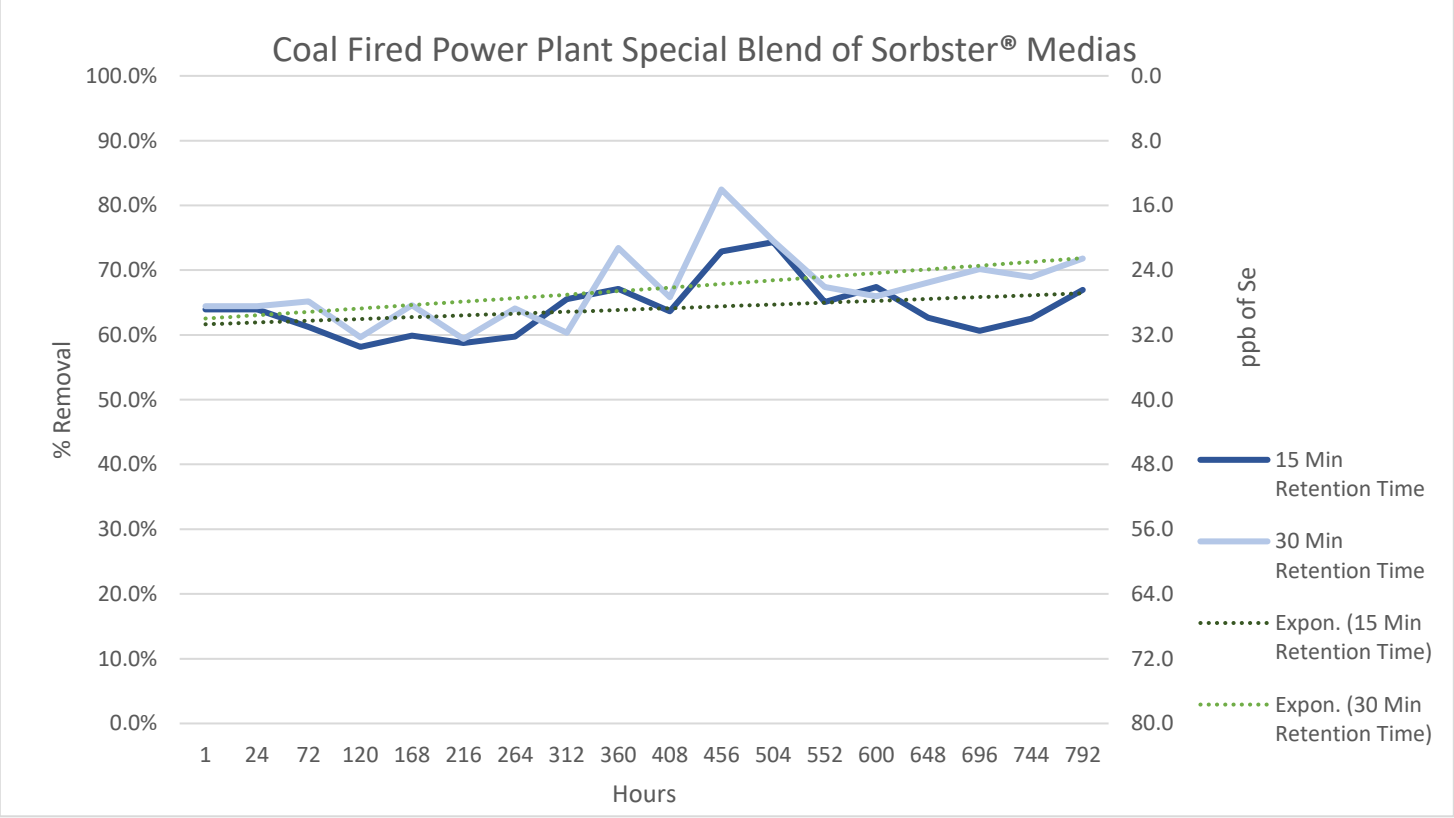
Sorbster was tasked with removing selenium from the retention pond of a coal fired power plant. This project was done in three phases, resulting in a unique blend of Sorbster® Medias for the third phase, determined by the previous stages. The third phase was run continuously for 33 days, 800 hours, with one 5-day break between day 11 and day 12. (This was to prove intermittent operating capability.) The stream was run through two stages in series. Water retention time in each stage was 15 min, for a total of 30 min. The goal was to reduce selenium from 80 µg/L (ppb) to below the <35 µg/L (ppb) customer target.

Challenges:

One of the significant challenges in this study was a high number of sulfates, 3,440 mg/L. Sulfates act as competing anions with selenium in chemisorption processes. While we did not remove any of the sulfates, we have found a way to limit their effect preventing selenium removal.

Selenium Removal:

Sorbster successfully treated the water below the target of <35 µg/L (ppb) for the entirety of the water sample. We had a sustained removal rate of 65% (24 ppb average effluent) using Sorbster® Se-1 media targeting both selenate and selenite species of selenium in the water stream.



Sorbster® Se-1 Media Properties:

- Effectively removes soluble selenite, selenate, and selenocyanate in a wide range of process streams in a single pass, eliminating the need for multiple medias
- Produces no ancillary water streams that require additional treatment, handling, or disposal
- Our Media passes the EPA TCLP and California WET tests and allows for nonhazardous disposal options, reducing total cost to treat
- Requires fewer changeouts than competing media, maximizing ROI
- Can be installed in a side stream flow-through tank
- Easily configured to manage flow rate changes
- High Adsorbent capacity extending useable life

Let Sorbster Inc. help with your silica removal needs and water conservation issues. We can tailor a Sorbster® Media treatment to fit your system and goals.

All Sorbster® Medias Offer These Benefits:

- Flexible application without hidden costs
- Little operator intervention, minimal training
- Low energy requirement
- Lead-lag vessels for continuous operation during change out
- Long media life requiring fewer changeouts
- No activation chemicals
- No ancillary waste streams
- Non-Hazardous disposal reduces waste costs

Contact us at info@sorbster.com or by calling

Rich Lalama at (941) 201-7780

Brimman Frazer (415) 272-9451