

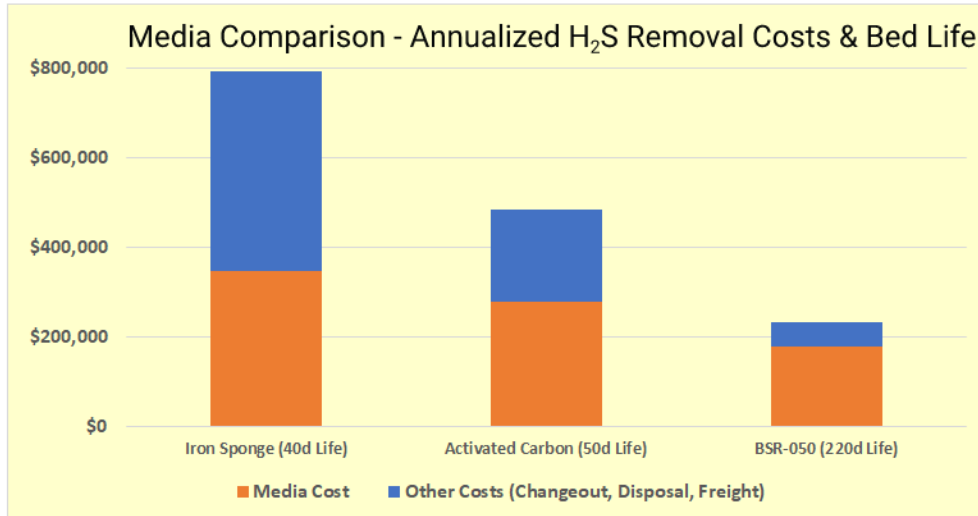
BSR-050 Hydrogen Sulfide Removal Media

The lowest overall cost dry media for the treatment of landfill gas

BSR-050® from Guild Associates is a high-capacity granular media for the removal of hydrogen sulfide from landfill gas. Engineered for direct replacement of Iron Sponge and Activated Carbon in dry media systems, BSR-050 is field-proven to treat landfill gas for power generation or Renewable Natural Gas (RNG).

INDUSTRY LEADING PERFORMANCE

- Highest H₂S removal capacity in the industry
 - Up to 1.4 lb/lb media, equivalent to 36 lb/cuft
 - Delivers longest bed life of any granular media
- Non-bricking formulation
 - Minimizes downtime and labor in media changeouts
- Lowest total cost of H₂S removal.
 - See Media Comparison below



CASE STUDY

A landfill in Houston, Texas, producing RNG employs a lead-lag system to remove 800-1,000 ppm H₂S from landfill gas. The landfill replaced 110,000 lbs of Iron Sponge with 33,000 lbs of BSR-050 and increased the gas flow from 5,600 to 6,500 scfm by treating gas from high-sulfur cells that were previously flared. The changeout interval lengthened from 3 to 15 weeks, operational expenses dropped by 80% and revenue increased.

BSR-050 is available in 1,000-lb Super Sacks for installation by crane into vessels. Removal can typically be accomplished by vacuum truck with no risk of additional labor to remove agglomerated pieces. Contact Guild Associates for an assessment of your application and potential for BSR-050 to minimize your H₂S removal costs:

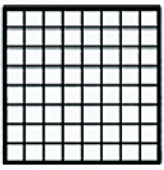


About Guild Associates

Guild Associates is a manufacturer of biogas processing equipment and BSR-050 Hydrogen Sulfide Removal Media. Guild Associates manufactures the patented BSR-050 media at a facility in Delaware OH.

Contact us for more information:

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Guild
Associates, Inc.

Case Study 1: Replacing Iron Sponge with BSR-050 H₂S Media

A landfill in Texas simultaneously reduces H₂S removal costs and increases feed flow and revenue with BSR-050



BSR-050 from Guild Associates is a high-capacity granular media for the removal of hydrogen sulfide from biogas. Engineered for direct replacement of Iron Oxide and Activated Carbon media in dry media systems, BSR-050 is field-proven to treat biogas for power generation and Renewable Natural Gas.

BEFORE BSR-050

A Texas landfill with a gas flow of 6500 scfm (800 ppm H₂S, 0.1% O₂) had an existing lead-lag system to remove H₂S from landfill gas. The 110,000 lbs of media in each vessel could not process all of the gas without H₂S breakthrough, so only 5600 scfm was processed. The additional 900 scfm was flared. The media would last just 3-4 weeks before changeout and would typically brick into large pieces, requiring 4-5 days for removal and replacement.

AFTER BSR-050

Without changes to the vessels, the existing media was replaced with 33,000 lbs of BSR-050. Since BSR-050 is the highest capacity disposable media on the market and operates efficiently even in low oxygen conditions, the landfill was able to process the full 6500 scfm without H₂S breakthrough. The changeout interval was increased to an amazing 15 weeks and since BSR-050 media is non-bricking, the changeout time was reduced to less than 2 days.

THE ECONOMIC IMPACT

Now being able to process the entire gas flow, the landfill's revenue increased by 16%. The total cost of hydrogen sulfide removal was decreased by an astounding 80%, as the longer time between changeouts and shorter time for executing the changeout significantly decreased the overall operational expenses.

Properly applying BSR-050 to your site involves understanding all aspects of the H₂S removal process. Contact Guild Associates for a full expert evaluation of your existing process, or have us provide a complete solution including vessels, media, and controls.

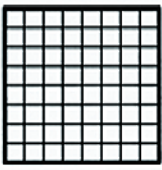


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Case Study 2: Replacing Iron Oxide H₂S Media with BSR-050

An East Coast landfill reduces H₂S removal costs and simultaneously increases uptime and revenue with BSR-050



BSR-050 from Guild Associates is a high-capacity granular media for the removal of hydrogen sulfide from biogas. Engineered for direct replacement of Iron Oxide and Activated Carbon media in dry media systems, BSR-050 is field-proven to treat biogas gas for power generation and Renewable Natural Gas.

BEFORE BSR-050

An East Coast landfill with a gas flow of 5000 scfm (550 ppm H₂S) had an existing parallel vessel system to remove H₂S from landfill gas upstream of a power plant. An Iron Oxide media was used and the total media weight of 130,000 lbs would last just 2 months before changeout and typically bricked into large pieces, necessitating 2 full weeks for removal/replacement and rental of specialized equipment.

AFTER BSR-050

Without changes to the vessels, the existing media was replaced with 57,000 lbs of BSR-050. Since BSR-050 is the highest capacity media on the market, the changeout interval was increased to an amazing 6 months or longer. Spent BSR-050 media is free-flowing during removal (see picture at right) hence the time for media removal/replacement was reduced to 1 week.

THE ECONOMIC IMPACT

The landfill is now able to process the gas flow with only 2 changeouts per year (rather than 6) and with only 2 weeks of downtime per year (rather than 12). As a result, the changeout service costs decreased by 80% and the total cost of hydrogen sulfide removal decreased by 50%. Furthermore, revenue increased by 25% due to the reduced downtime.

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