



BIOGAS SWEETENING SOLUTIONS

Biogas Sweetening

Biogas emissions provide a valuable potential source of recoverable energy. However the presence of hydrogen sulfide (H_2S) in biogas can restrict its use as it will adversely impact downstream equipment and cause SO_x emissions in thermal combustion of the gas. In addition, the presence of H_2S can lead to issues with health and safety as well as cause a potential off-site nuisance condition for the community. Biorem offers an array of biological trickling filters designed to handle any biogas flow and H_2S content. Our systems are safe and effective and our biological process enables recovery of valuable sulfur by-product.

Biorem's Solution

Unlike the current commercial offerings for H_2S removal which use expensive chemical approaches, Biorem's systems utilize advanced biotrickling filter technologies that perform at minimal operating cost. Biorem's biogas sweetening process harnesses the power of nature to effectively remove greater than 99% of H_2S in a simple and cost effective manner.

Operational savings of greater than 90% can be achieved using Biorem's biogas sweetening approach when compared with caustic scrubbers or iron based redox processes.



Features

- High efficiency H_2S removal as high as 30,000 ppm
- Robust process handles variation in inlet concentrations
- Treatment removes H_2S to pipeline quality
- Greater than 98% availability: self cleaning system eliminates the need for downtime
- Compact vertical tower design is ideal for sites with limited space requirements
- Units are simple to operate and can be customized to suit specific site requirements
- Lowest life cycle cost of any conditioning technology
- Meets all NFPA, NEC, and NEMA codes and regulations
- Production of a high nutrient value slurry as a marketable product



Applications

Digesters

- Municipal WWTP
- Agriculture
- Industrial Applications (food, dairy, beverage)
- Municipal S.S.O.

Landfill

Uses

- Compressed natural gas
- Liquefied natural gas
- Turbines/micro turbines
- Internal combustion engines
- Boilers
- Flares

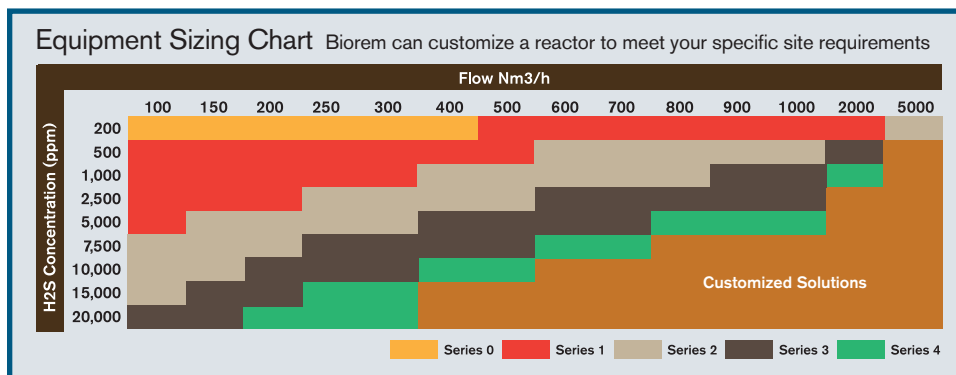
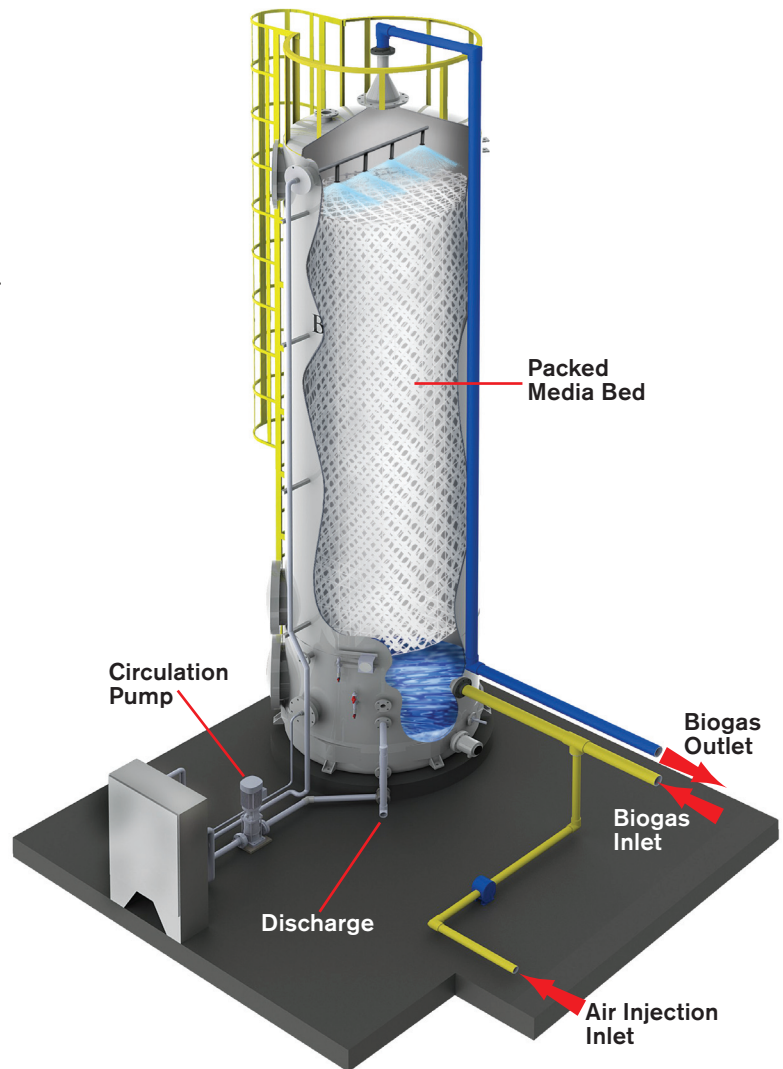
Why desulfurize?

Over time, hydrogen sulfide causes significant damage to gas engines. Through combustion, the formation of sulfuric acid can occur which increases corrosion leading to a drop in engine oil pH. This results in more frequent oil changes, reducing the life span of your equipment thereby increasing costs due to repair, replacements and downtime. Biorem's sweetening systems remove the hydrogen sulfide from your biogas streams through a safe biological process, not only ensuring your equipment will last longer and run more efficiently but more importantly we save you time and money.

How it works

The Biogas Sweetener is an aerobic biotrickling filter designed in a forced-draft, up flow configuration. Biogas enters the base of the tower and then passes up through the media. This specialty media provides an ideal environment for the establishment of a biofilm consisting of acidophilic bacterial colonies with adequate void volume for free gas flow. The media and biofilm is kept moistened by way of re-circulated water. As the biogas comes in contact with the biofilm, hydrogen sulfide is solubilized and subsequently oxidized by the microbes. Sulfur and sulfate compounds are formed as by-products and are purged with the re-circulated water blowdown. A continuous flushing design is utilized to virtually eliminate downtime enabling by-product removal while the system is in operation.

A very small volume of air is injected into the process to maintain the required oxygen concentration in the gas for optimized biological activity. The system is designed to limit the residual oxygen in the treated gas stream and several levels of safety interlocks are incorporated to ensure that the lower explosive limit is never approached.



Optional Equipment

- Winterization package
- Nutrient feed package
- Other biogas conditioning equipment (siloxane removal, moisture removal)
- Biogas composition analyzer

Biorem is a leading clean technology company that designs, supplies and distributes a comprehensive line of high-efficiency, biological purification systems used in the sweetening and conditioning of biogas as well as the elimination of odors, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs).

Biorem has sales and manufacturing offices across the continent, a dedicated research facility, a worldwide sales representative network and over 600 installed systems worldwide in its 19 year history. For more information please visit our website at www.biorem.biz



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