

TECH NOTES

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Model 236 H₂S Gas Purifier

The increasing demand for biogas utilization and air regulatory requirements has dramatically increased the importance of H₂S removal in biogas.

Our traditional offering included the Model 234 and 235 Gas Purifier which uses iron sponge to remove the H₂S in biogas.

The vessel design and capacity of both models required a revamp to help address the following important industry requirements:



Rising H₂S levels

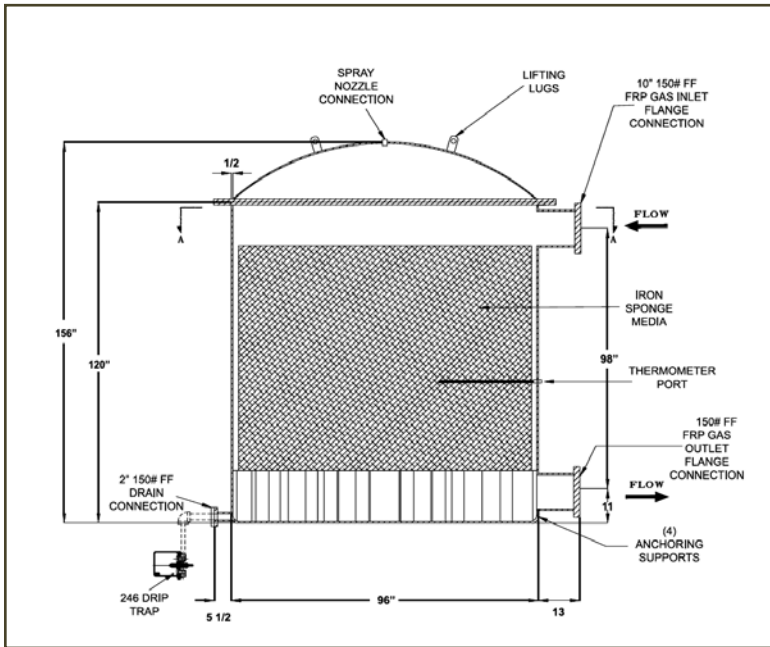
Biogas contains H₂S in typical concentrations from 500 ppm to 1000 ppm. Recent applications contain a considerable increase in H₂S concentration above 3000 ppm, which is attributed to the influent wastewater stream. The odor of hydrogen sulfide becomes offensive at 3 to 5 ppm. An atmospheric concentration of 300 ppm can be lethal.

Corrosive nature

Trace amounts of H₂S level in the gas cause major corrosion and pitting problems in the piping and equipment installed on the gas stream.

Increased Gas Production

Plants built in the late 1970's are in need of upgrades primarily to address their increased capacity and increased overall gas production.



Biogas Utilization

Due to the rising cost of fuel, it is beneficial for wastewater treatment plants to utilize biogas as an effective alternate source of energy. There is also significant demand in the On-Farm Biogas recovery systems to utilize the gas in a more effective application.

The life cycle of any high capital equipment, such as a heat exchanger or engine-generator, is subjected to a tremendous reduction due to the corrosive effects of H_2S .

High Initial Capital Cost

Through research, we have found that iron sponge is still the most cost-effective and simple method of H_2S removal. High H_2S levels, increased gas production and the rising cost of steel all contribute to a – High *Initial Capital Cost*.

Research and Development

After identifying the market need, Varec Biogas allocated resources into the research and development of a cost-effective alternative to our Model 234 and 235 Gas Purifier. This resulted in the added benefit of an improved Iron Sponge bed life at higher plant Biogas volumes.

The Model 236 Gas Purifier utilizes the basics for H_2S removal. It utilizes iron sponge as the media. The media is housed in a lightweight, high grade and spark resistant, NFPA 820 fire retardant fiberglass vessel with a small footprint.

Fiberglass offers high corrosion resistance with a factor of four or more in the longevity of the vessel when compared to its conventional epoxy-coated carbon steel counterpart.

The cylindrical design of the purifier assists in proper biogas distribution inside the vessel which helps avoid gas channeling.

The Varec Biogas Model 236 Purifier utilizes the manual regeneration method where the Iron Sponge is removed to achieve regeneration via natural aeration.

Continuous Regeneration

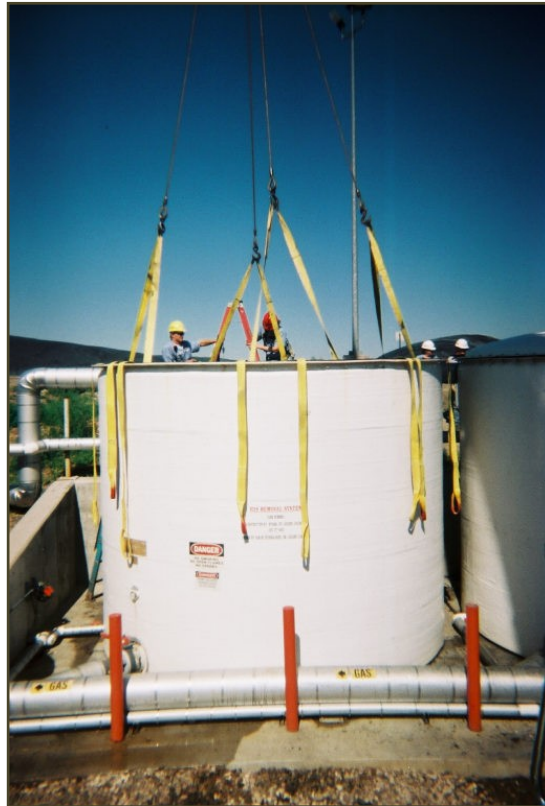
An economical method for long-term operation, maintenance cost savings and increased media efficiency is "Continuous" or "On-Line" regeneration.

In the Continuous Regeneration System, a controlled amount of air is injected into the gas at the purifier inlet. A water spray wash system is in place for high-temperature safety control. A Soda Ash Slurry Injection System assists in maintaining pH balance. The "On-Line" regeneration system significantly extends the bed life of the media allowing minimal maintenance and operating cost.

Media Removal System

Varec Biogas offers a “Media Removal” method of changing out the spent iron sponge media from the vessel in the Model 236 Purifier Systems. The removal system will allow media to be changed quickly and easily to reduce plant downtime.

The Varec Biogas 236 Series Purifier provides the lowest capital cost per cubic foot, with the least labor and material requirements of any product on the market.





Please contact your local representative for technical assistance and additional information on this exciting new product.



Toll Free 1-866-4BIOGAS