Venture Engineering Announces New Offering To Landfill Gas Customers — Siloxane Removal

Due to significant market demand from our landfill gas and digester gas (biogas) customer base, Venture has designed a completely modularized gas conditioning skid, primarily intended for siloxanes removal, with added gas conditioning benefits.

August 29, 2013 (FPRC) -- Venture Engineering's siloxanes removal system is based on a multitude of practical landfill gas processing experience and was founded on the principals of design of siloxanes/NMOC removal systems located at various client installations, all of which were stick built, non-proprietary, industry standard unit operations. The Venture siloxanes removal system encompasses the best of all of our designs into one modularized, shop fabricated system. Venture's system includes regenerative selective adsorption followed by activated carbon adsorption.

Siloxanes removal systems have been in landfill gas service for 25 plus years. Until the more recent development of various molecular sieves, activated carbon was the primary removal device for siloxanes. A large enough activated carbon system will remove siloxanes to just about any level required. However, large activated carbon systems require space and energy to regenerate on-site. Furthermore, moisture, NMOC's and hydrogen sulfide also compete for adsorption surface area inside the activated carbon system.

Venture uses several different types of selective adsorbants including activated alumina, silica gels, and in some instances, molecular sieves in the first stage adsorption skid. The ultimate combination depends on the individual characteristics of the LFG to be conditioned.

The basic system includes a dual-swing bed adsorption skid, followed by a multi-bed activated carbon skid. Both systems are regenerated on-site either using waste heat (via inert tail-gas), or via low watt density electric heating elements. For high BTU gas plant applications, regeneration using heated tailgas (from a TOU heat exchanger as an example) is the preferred method. However, for IC engine or turbine plants, no such inert tailgas stream exists. As such, a combination of cleaned LFG gas (slip stream) and electric heating elements provide the regeneration for the off-line vessels.

Benefits of Venture's Siloxane Removal System:

Venture's skid mounted gas conditioning system has been designed primarily to consistently remove siloxanes from biogas to levels acceptable for combustion or to meet a pipeline specification. In addition to siloxanes removal, Venture's gas conditioning system will also reduce the levels of other contaminants such as hydrogen sulfide and halogenated organics, which has a tremendous benefit on downstream operations.

System Performance:

The system is completely modularized and designed to remove siloxanes from raw biogas with an inlet flowrate of up to 4000 SCFM (modules in increments of 1000 SCFM) and inlet siloxanes concentration of 75 ppmv or less to an outlet concentration of 1.0 ppmv or less. This assumes that total gaseous non-methane organics (NMOCs) does not exceed 6000 ppmv (as ppm methane), and hydrogen sulfide =35 ppmv. Higher NMOCs and/or hydrogen sulfide will affect the size of the

system. In instances where hydrogen sulfide concentrations are significantly higher (>100 ppmv), it may be more economical to employ a hydrogen sulfide removal step ahead of the selective adsorption skid. This will be determined on a case by case basis.

The initial investment (capital) for a Venture Siloxane Removal and Gas Conditioning skid can be as low as $180/SCFM (inlet) and up to $225/SCFM, depending on specific gas composition, flow rates, temperature and pressure requirements.

About Us

Venture Engineering & Construction is a closely held, multi-disciplinary engineering and construction management company and Pittsburgh's premiere process engineering solution firm, known as a leader in the treatment of biogas and landfill gas conversion to energy process.

Venture Engineering and Construction was created in response to the need for:

A process focused organization to serve industries such as green fuels, water/wastewater, energy, and consumer product / healthcare.
Services complementary to process engineering, estimating, design, construction management, and commissioning.
An organization that is adaptable to its clients' internal capabilities with minimal constraints.

Venture projects include some of the largest biogas to energy projects and the design of the first frac water crystallization facilities in the Marcellus/Utica region.

Venture Engineering & Construction provides high-value consultancy, engineering, and project management services to the world's energy, power, and process industries. Venture designs, delivers, and maintains strategic and complex assets for their customers. Venture is a leader in alternative energy solutions such as landfill gas (LFG) to energy plants, cogeneration facilities, and waste-to-energy plants. Venture's patent-pending gas conditioning systems lead the way, providing extremely effective removal of harmful contaminants such as siloxanes, NMOCs and H2S from Landfill Gas (LFG) at the best value.

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