



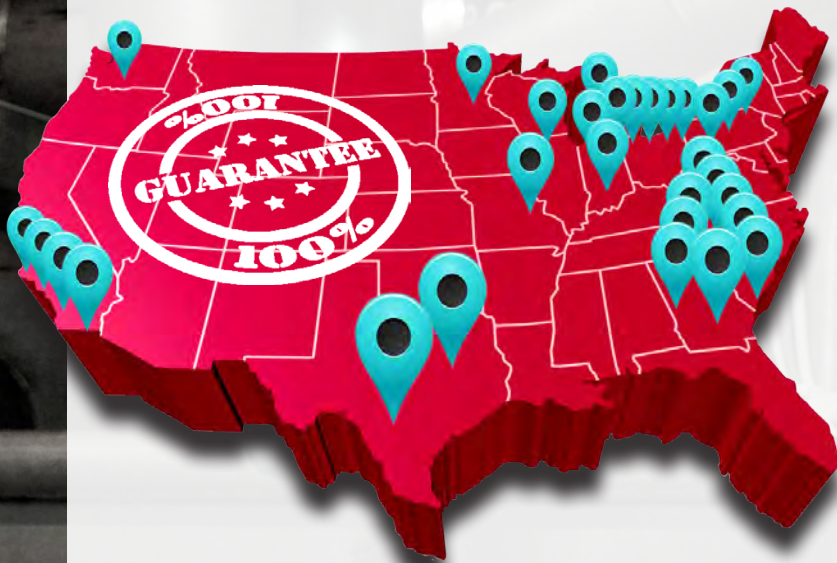
Your partner in biogas treatment

Willenergy
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Equipment • Media • Parts • Service

Willexa^{energy}

The original - and still the best



We invented the regenerative siloxane reduction system - so why settle for an imitation?

With the most experience and the latest technology, Willexa Energy is the obvious choice for your biogas treatment needs. We partner with you to design and build a siloxane reduction system guaranteed to meet and exceed the needs of your application, and then we stand behind it for the life of your project.

Our engineers have more than 20 years of experience specializing in gas purification and have designed, built, commissioned and supporting more than 50 systems throughout North America. With a solid reputation built on an unblemished history of success, no other manufacturer can provide the confident level of performance we offer.

How we do it

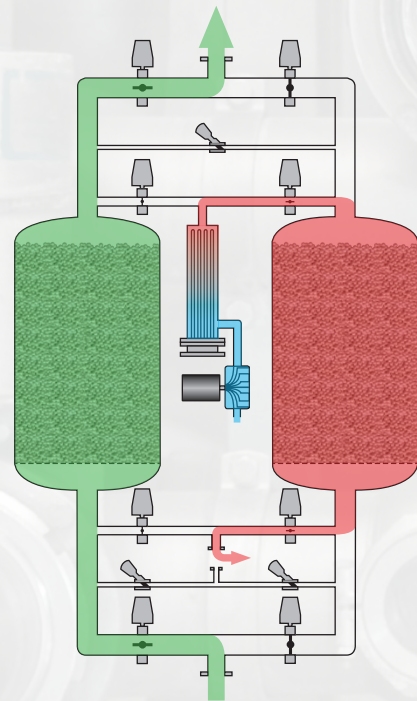
Revolutionizing the biogas treatment industry

The SRS Siloxane Reduction System includes two or more pressure vessels filled with desiccant based media in the form of loose beads. One or more vessels are always on-line treating the gas stream while one vessel is always off line being regenerated or waiting in standby.

Reduction of siloxane vapor is achieved by flowing the contaminated gas upwards through the on-line vessels where the siloxane molecules adhere to the surface of the desiccant beads through adsorption. After a fixed period of time the newly regenerated vessel is brought on-line one and the most saturated vessel is taken off-line by isolating it from the gas stream.

The saturated bed is then regenerated using a Thermal Swing Adsorption (TSA) process. In this process, heated ambient air, provided by a blower and heater, flows downwards through the media bed heating the desiccant beads. The heat breaks the bond between the beads and the siloxane molecules. The released siloxane molecules are then carried out of the vessel by the air stream.

In addition to siloxanes, the adsorption and regeneration process will also collect some of the Volatile Organic Compounds (VOCs) typically found in landfill gas. Because of this, the air used for regeneration cannot be released to atmosphere - it must be incinerated in a flare or thermal oxidizer.



Simplified two vessel system shown

Regenerative Siloxane Reduction

Increases revenue & decreases operating costs

Whether you are operating engines, turbines, a fuel cell or a boiler, reducing siloxanes prior to combustion will not only decrease your operating costs, it will also increase your efficiency and uptime. Siloxane reduction will significantly improve the profitability of your landfill or digester gas to energy project.



Engine Protection

Reducing siloxanes in the fuel gas for your reciprocating engines will eliminate silicone dioxide build up as a cause of maintenance, significantly reducing the frequency of oil changes, spark plug changes, top end overhauls and parts failures. It will also maximize engine efficiency and uptime, increasing power production and project revenue.



Turbine Protection

Siloxane build up in a gas turbine will significantly reduce turbine efficiency over time, fouling nozzles and recuperators, and leading to frequent and expensive overhauls. Siloxane reduction eliminates siloxane related maintenance and keeps your turbine operating at peak efficiency, minimizing costs and maximizing profits.



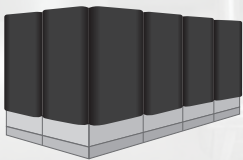
Exhaust Catalyst Protection

Left untreated, siloxanes can destroy an exhaust catalyst in a matter of hours, so when post combustion catalysts are required for emissions control, reliable and verifiable siloxane reduction is a necessity. Two stages of siloxane treatment with an integrated continuous siloxane monitor ensures siloxane levels remain below detectable limits, providing guaranteed catalyst protection.



Boiler Protection

Siloxane buildup in a landfill or digester gas fueled boiler will coat internal surfaces and foul burner tips, significantly reducing heat transfer efficiency. Just one overhaul of your boiler to remove siloxane related build up can more than pay for a regenerative siloxane reduction system. Consider it an insurance policy - and a smart investment.



Fuel Cell Protection

Siloxanes will cause rapid failure of a fuel cell if left untreated. Even levels of a few ppb have been found to lead to rapid deposits and failure. As with other critical applications, two stages of siloxane treatment with an integrated continuous siloxane monitor ensures siloxane levels remain below detectable limits providing guaranteed protection and worry free operation.

Considering carbon?

Activated carbon may adsorb siloxane, but it also adsorbs VOCs, moisture, hydrocarbons, hydrogen sulfide, and many of the other contaminants found in landfill and digester gas. When used for bulk siloxane reduction carbon media rarely lasts more than a few weeks, and the downtime, labor, replacement media and disposal costs can cost hundreds of thousands of dollars per year!

Regeneration is the answer. Our systems use a non-carbon based media that is regenerated automatically on site, lasting up to 18 months or more. Our engineers invented this technology and we have the longest and most successful history of any regenerative siloxane reduction provider. Count on us for all your siloxane reduction needs. Contact us today for a quote.



The SRS Siloxane Reduction System

Welcome to the next generation of biogas treatment technology



It's reliable. It's cost effective. It's pretty much perfect.

The SRS is the result of more than a decade of research and development. Brought to you by the engineers who invented the desiccant based regenerative siloxane reduction system and who continue to lead the industry with the latest and most innovative technology in the market, the SRS is the most advanced biogas treatment system ever devised.

The customizable, twin tower and modular designs feature an advanced control system and flexible operating parameters that can adapt to changes in gas flow and composition, providing reliable, guaranteed performance over the entire life of your gas to energy project.

Built for the toughest applications, no flow or siloxane level is too high. With exclusive features including down flow regeneration, a VFD controlled blower, an SCR controlled heater, and a gas cooling option to minimize parasitic loads, this is the system everyone else is trying to copy. Contact us today for one of your very own. Choose from ambient air, split stream or alternate gas regeneration.



For low flow applications such as a single engine, we offer the innovative ST single tower siloxane reduction system. Exclusive to Willexa Energy, this inexpensive, non-carbon based regenerative adsorption system operates continuously for up to four weeks between regenerations. So why replace your media when you can regenerate it? For sites without treatment, this system will eliminate siloxane related maintenance, loss of efficiency and downtime. For sites struggling with the high costs of carbon, this system will extend the life of your media beds from weeks to months or even years!

Continuous Siloxane Monitoring

The optimum in real time performance verification



For critical applications there is no better protection for your downstream equipment than a continuous siloxane monitor. Integrated into your siloxane reduction system, this monitor offers real time performance verification while minimizing power consumption and maximizing media life. With the ability to monitor individual siloxane species at up to four points in your process, an accuracy in the ppb, and user adjustable set points and alarms - this is the real deal.

No more manually collecting, packaging and shipping hazardous gas samples. No more waiting days or weeks for analysis results. Remotely monitor the quality of your gas stream in real time. Contact us today for more information.

Options and Upgrades

Complete, custom biogas treatment solutions



Biogas Filtration Systems

Every system includes our high performance pre and after filters as standard. Options such as dual filtration with isolation and bypass offer redundancy & simplified maintenance.



Carbon Polishing Systems

For critical applications, a regenerative system followed by a carbon polisher offers two layers of protection. Especially effective when coupled with a continuous siloxane monitor.



Chilling & Dehydration Systems

Our air and water cooled chilling and dehydration systems offer precise temperature and moisture control in a modular, fully integrated skid mounted package.



H₂S Reduction Systems

Working with leading industry suppliers we offer complete biogas treatment solutions to solve both your hydrogen sulfide and siloxane reduction needs.



Thermal Oxidizers

Seamless integration of the siloxane reduction system and the flare is a critical step to ensure smooth start up and worry free operation. Let us handle it for you.



Our engineers have more than 20 years of experience in gas treatment specializing in regenerative adsorption systems. Put our knowledge and experience to work for you engineering and consulting on your next gas to energy project. We will ensure your project is reliable, successful, on time and on budget. Contact us today for answers to all your treatment questions.



Parts and Service Solutions

Complete aftermarket support for any system anywhere



Parts & Consumables

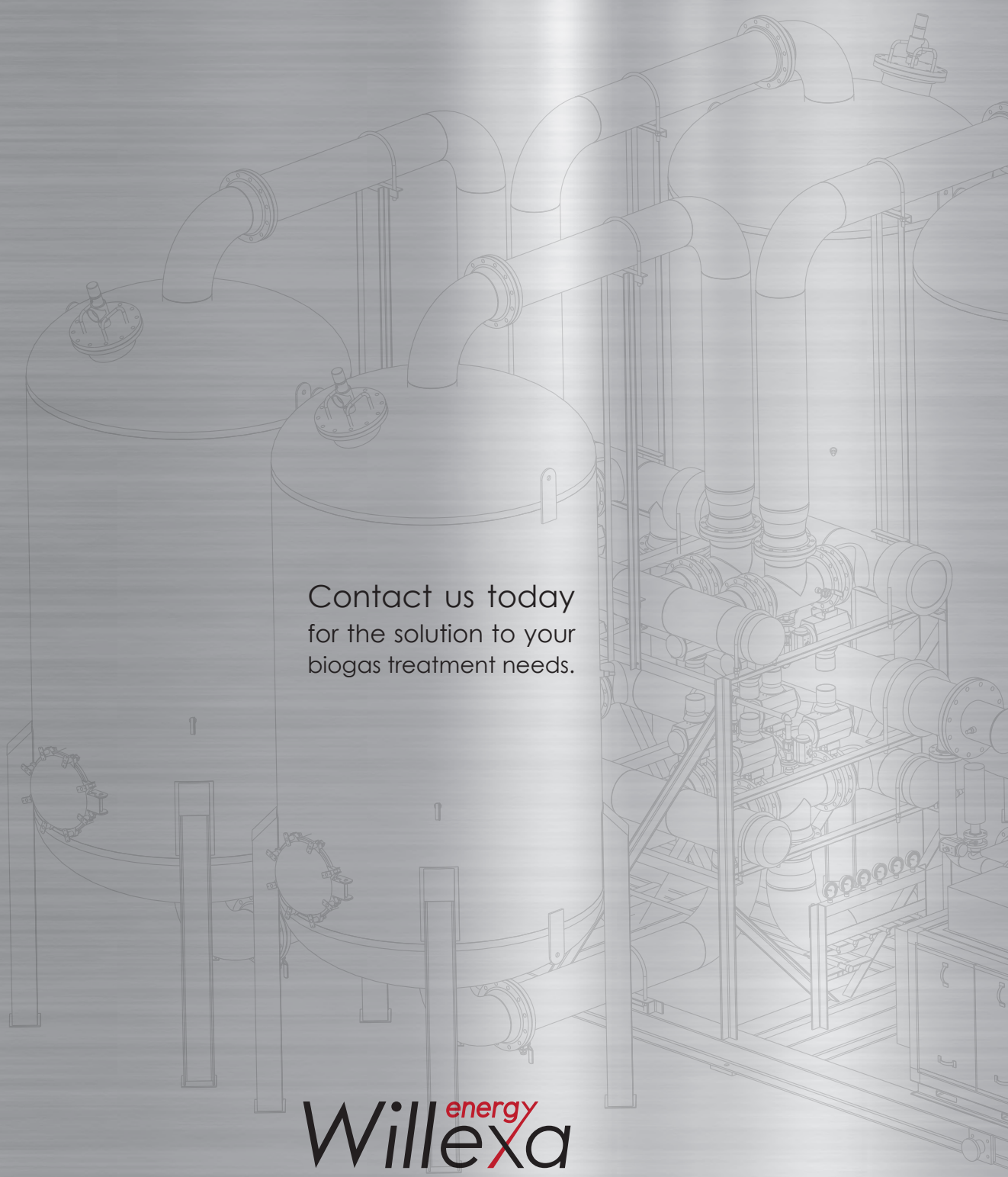
We offer media, elements & parts for all makes and models of biogas treatment systems. Upgrade to our specialized media blend for improved performance & longer media life.



Service Support

Our service technicians provide the help you need when you need it the most. With more than 20 years of experience in gas treatment, if we can't get it working, nobody can.





Contact us today
for the solution to your
biogas treatment needs.

Willexa energy

2012 Atherton Drive | 704.560.8895
Indian Trail, NC 28079 | Willexaenergy.com