



SULFURIX™ System

Biogas scrubber for hydrogen sulfide removal

Key features & benefits

- No chemical additives required
- No adsorbent media required
- Simple operation
- High removal efficiencies
- Suitable for new systems and retrofits
- No Waste products

How we create value

- Treats valuable biogas by product for reuse
- Prevents boiler and engine corrosion
- Reduces wastewater treatment plant operation and maintenance costs





The recovery of renewable energy in the form of biogas, produced by anaerobic digestion processes, is increasingly used as an effective way to cut the costs of industrial wastewater treatment. Biogas recovery is the core of many organic waste-to-energy systems.

However, biogas must first be 'scrubbed' to remove hydrogen sulfide for use in engines, CHP (Combined Heat and Power) units and boilers:

1. to meet exhaust standards in terms of SO₂
2. in case the boiler has an economizer.

There are several means by which biogas can be desulphurized, including absorbent media and chemical systems. GWE's SULFURIX™ wet biogas scrubber provides the perfect blend of high performance and simple, efficient operation, placing it far ahead of other, competing technologies. The SULFURIX™ process needs no chemical additions or costly media replacement, making it cost-effective solution for gas scrubbing.

How it works

The scrubber consists of a SULFURIX™ tower, a non-clogging inlet distribution system and two layers of non-clogging modular media.

In the SULFURIX™ tower, the biogas is first of all washed with aerated, sulfide free wastewater (mixed liquor from an aerobic treatment basin). Sulfide free water is continuously pumped into the scrubber tower from the outlet area of the aeration basin, sufficient to dissolve all of the H₂S in the biogas into the H₂S free wastewater at the prevailing pH and temperature.

In addition to pure H₂S scrubbing (dissolving), biological sulfur oxidation also takes place in the SULFURIX™ system. A small amount of air,

proportional to the flow of biogas, is added at the scrubber inlet. This allows oxidation of the sulfide (to sulfur and sulfate) by attached, fixed film biomass. The air flow rate is kept low to produce a virtually oxygen free, low H₂S treated biogas. Since sulfur is ultimately returned to the wastewater as sulfate, there are no waste products.

The SULFURIX™ scrubber is typically placed at an elevation higher than the activated sludge aeration basin. If this is not possible, a special scrubber model with a built-in water tank and an extra pumping station can be provided.

Biogas is usually drawn from an existing anaerobic wastewater treatment plant. This means that the biogas is produced at neat atmospheric pressure. As pressure loss through the scrubber is minimal, no biogas blower is required. However, a blower can be used to bring the biogas up to the required pressure for use (such as in a factory steam boiler) if required.

Besides those used for air flow control, no active controls are required. Scrubbing occurs at a constant rate at all times, for all flows and H₂S concentrations. Removal efficiency is constant throughout.

