

**Biogasclean has
the optimal solution
for your biogas plant**



**BIO
GASCLEAN**

the key to efficient
and successful
utilization of biogas

Biological removal of H₂S from biogas

Low operating costs coupled with high availability

Biogasclean's H₂S removal process is 100% biological and operating costs 80-90% lower than chemical gas cleaning systems because Biogasclean's systems neither consume caustic soda nor require frequent media replacement such as e.g. iron sponge and activated carbon filters. The availability is above 98%. The only residue from the process is a valuable liquid fertilizer. Therefore, a gas cleaner from Biogasclean is not only economically but also an environmentally sound investment.

How it works

The biological H₂S removal process requires oxygen. Therefore, atmospheric air is injected into the raw biogas at the inlet to the scrubber tank. The packing media houses the bacteria which oxidize H₂S to sulfate and elemental sulfur. The scrubber liquid is trickling down the packing media and provides moisture and nutrients for the bacteria. The effluent from the process is a liquid fertilizer which is discharged into the outflow from the anaerobic digester.

Plant: *Thai Beverage
Energy Co. Ltd.
Thailand*

Capacity: *600 m³/h
13,000 ppm H₂S*





We offer a full range of biological H₂S removal systems

Biogasclean supplies four different types of gas cleaners so it is possible to choose the best solution for your project.



Biogasclean ECO

This type is for small H₂S loads. The tank is so small that the complete gas cleaner can be loaded on a truck or shipped worldwide in one forty feet container. The packing media can be cleaned inside the tank.



Biogasclean BASIC

This type is for smaller and larger H₂S loads. It is the cheapest model as the tank is not designed for being filled with water and the control center is skid mounted. The packing media shall be moved outside the tank for cleaning.

Biogasclean QSR

This type is for smaller and larger H₂S loads. We manufacture fiberglass tanks in several countries to reduce transportation costs. The packing media can be cleaned inside the tank with the QSR® - Quick Sludge Removal - system.



Biogasclean OS

This type is for large H₂S loads at a.o. ethanol distilleries and paper mills. The diameter of the tank is so big that it is not possible to transport from a workshop; therefore the tank is manufactured on site. The packing media can be cleaned inside the tank with the QSR® - Quick Sludge Removal - system.



Plant: MEC Biogas
Maabjerg -
Bioenergy A/S
Denmark

Capacity: 3,600 m³/h
3,000 ppm H₂S

Biogas - renewable energy from organic waste streams

Biogas is a byproduct from anaerobic digestion of organic waste streams at livestock farms, food processing plants, breweries, palm oil mills, starch factories, ethanol distilleries, paper mills and other waste water treatment plants. Biogas is a renewable energy source and contains 50-70% methane (CH₄), 30-50% carbon dioxide (CO₂) and 0.1% to 3% (1,000 to 30,000 ppm) hydrogen sulfide (H₂S). When the H₂S is removed biogas can substitute oil and gas and be used for power and heat production or upgraded to natural gas quality.

Why it is necessary to reduce the H₂S

H₂S will form sulfur dioxide (SO₂) and sulfuric acid (H₂SO₄) during combustion which results in a very aggressive corrosion. The corrosion will literally reduce the lifetime of the downstream equipment by years! This is why gas engine manufacturers require that H₂S in the clean gas must not exceed 100-250 ppm. Otherwise, the operating costs for change of engine oil, spark plugs and other maintenance will increase significantly. Furthermore, there will be high costs for repairs and income lost during overhauls and break downs. Air quality standards is another driver as combustion of un-cleaned biogas will result in acid rain from emissions of sulfur dioxide (SO₂). Also health and safety standards may require H₂S removal as H₂S is toxic even in small concentrations.

Biogasclean A/S

Biogasclean is specialized in biological desulfurization of biogas. We develop, manufacture and market fully automated gas cleaning systems for H₂S removal with low operating costs and high availability. Our company has a solid track record. By the end of 2015 we have 180 plants in operation or under construction in 38 countries and supplies clean gas to more than 440 MW gas engines.



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