

Biogasclean is a **world leader**
in biological **desulfurization**
and **methanation** of biogas



Plant: Nature Energy
Maanson
Denmark

Capacity: 600 m³/h
(off-gas from
upgrading)
7,500 ppm H₂S



The key to innovative and
efficient production of biogas



Plant: Perdana Palm Oil Mill Indonesia
Capacity: 1200 m³/h, 3,000 ppm H₂S

Low operating costs coupled with high availability

Biogasclean's H₂S removal process is 100% biological and operating costs 70-80% lower than chemical gas cleaning systems as Biogasclean's systems neither consume caustic soda nor require frequent media replacement such as iron sponge, activated carbon, etc. The availability is above 98%. The only residue from the process is a valuable liquid fertilizer.

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.



Biogasclean ECO

This type is for small H₂S loads. The 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 without grating and not designed for being filled with water and the control unit 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.



Biogasclean MBR

This type is for cleaning of biogas with high H₂S loads generated on waste waters with high organic loads, i.e. >130,000 mg/l COD before anaerobic digestion. Depending on the volume of H₂S we use either prefabricated tanks or field erected tanks. The packing media is floating in the scrubber liquid and no special cleaning is required.

Plant: Thai Beverage
Energy
Thailand
Capacity: 600 m³/h
8,000 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 and methanation of biogas without the use, of chemicals. We develop, manufacture and supply fully automated gas cleaning systems for H₂S removal combining low operating costs with high availability. Our track record comprises more than 300 plants in operation or under construction in 40 countries. Biogasclean supplies clean gas to more than 650 MW gas engines and boilers and removes sulfur from more than 25 biogas upgrading plants for RNG production.

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