BIOGAS Products

Biogas Industry Experts — Stainless Steel Fabrications

Hydrogen Sulphide Removal

Media, biological & chemical solutions for biogas

MADE IN BRITAIN

Removing H2S from biogas

Biogas is made up mainly of methane, carbon dioxide and potentially traces of hydrogen sulphide. We remove hydrogen sulphide from biogas for a number of reasons:

- ✓ So that methane can be recovered, free from sulphides, for use as a fuel.
- ✓ To reduce sulphur dioxide emissions during combustion.
- ✓ To protect pipes, engines and mechanical components.

If there is hydrogen sulphide (H2S) present in your biogas at the point of combustion, it will convert into sulphuric acid, which is highly corrosive to your engine and other parts of your mechanical plant.

If you expose your engine to sulphuric acid, you will see a considerable reduction in your engine life.

It's also likely that you will not be covered by your manufacturer's warranty - which often specifies a maximum of 250ppm H2S in your biogas, in order to receive full cover.

If you want to protect your engines life span, reduce your maintenance costs, increase your engine's reliability and be compliant with your manufacturer's warranty, you must remove or significantly reduce the amount of H2S in your biogas.

Biogas Products Ltd design and manufacture a range of H2S scrubbers using the following solutions:

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BIOLOGICAL SCRUBBERS (HIGH H2S LOADING)

Ideal for sites that have a constant H2S loading and a supply of effluent/water with nutrient addition.

Consumables: Effluent/water, electricity, nutrients
Discharge: Wastewater (potential fertilizer)

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CHEMICAL SCRUBBERS (MEDIUM TO HIGH H2S LOADING)

Ideal for sites that already have an available supply of sodium hydroxide. These scrubbers can handle variable H2S loadings and offer instant protection on system start up.

Consumables: Sodium hydroxide, electricity, water
Discharge: Wastewater

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MEDIA SCRUBBERS (LOW H2S LOADING)

Can be installed as a stand alone H2S removal process or as standby/addition to an existing scrubbing process. This type of scrubber provides instant start up protection. This solution is economically viable when the combination of biogas flow and H2S loading requires a low annual volume of replacement media.

Consumables: Replacement media
Discharge: None

Biological Solution

A complete biological process provides an economical solution for sites with a constant, high, H2S loading. Apart from a small amount of nutrient feed and water, the process is self-sustainable and does not require replacement media or chemical additives.

How it works

The acid resistant, stainless steel scrubbing tanks are packed with BIOROCK™ media, creating the perfect environment for sulphur oxidation bacteria to grow and multiply. As the biogas passes upwards through the tanks, the hydrogen sulphide (H2S) is converted to sulphate through a series of oxidations.

On some sites it's possible to utilise effluent or liqours, seperated from the digested sludge, as a wetting media. However, it must be free from particles and not contain any chemicals.

About BIOROCK™

- ✓ stable and inert - for long life (20 years);
- ✓ light and strong - ideal for deep beds;
- ✓ high porosity and surface area - ideal for biological growth;
- ✓ stone voidage allows continual irrigation, ensuring the biomass is fully wetted for peak performance;
- ✓ >99% H2S and mercapatan removal at steady loading is achievable.

Chemical Solution

Our H2S Chemical scrubbers are particularly effective on sites with a medium to high H2S loading.

How it works

The single stage, counter-current, process uses sodium hydroxide, also known as caustic soda, to reduce the content of hydrogen sulphide in the biogas.

Raw biogas flows upwards through the media packed vertical tower. Simultaneously, recirculated sodium hydroxide solution is sprayed downwards through the media, absorbing hydrogen sulphide (H2S) from the biogas.

This process is reliable and efficient and you will have cleaner, less corrosive biogas as a result.

Benefits of this method

- ✓ small footprint
- ✓ well proven process
- ✓ easily retrofitted
- ✓ instant start up after plant shutdown
- ✓ ideal for variable H2S loadings

Media Solution

Dry media scrubbers are most effective on sites with a low to medium flow and H2S content. The system can be installed as a stand alone H2S removal process or as standby/addition to an existing scrubbing process and provides instant start up protection.

We recommend packing your media scbrubber with BIOBOND Media, specifically formulated for use on Biogas. It's a metal oxide-based pellet which breaks down the Hydrogen Sulphide (H2S) in Biogas, forming a non-hazardous compound.

BIOBOND's performance is superior to carbon activated media and costs much less. It's usable in both aerobic and anaerobic gas flows leaving a cleaner, less corrosive gas.

BIOBOND: formulated specifically for Biogas

Continues to perform in environments of high relative humidity
BIOBOND Media is not affected by moisture. It will maintain excellent performance levels in environments up to 100% relative humidity.

Non-pyrophoic and safe from exothermic reaction
High methane content makes biogas flammable and if combined with air, can form an explosive gas mixture.

Can be disposed of easily or spread to land
The spent media is non-hazardous and its rich iron content makes an excellent nutrient for soil.

Replace existing media without having to change a thing
Can be added to any dry-media system without the need to change any existing process or equipment. It couldn't be easier.

Polypropylene tanks for lower gas pressures

Steel tanks for higher gas pressures

MADE IN BRITAIN

All of our products are designed and manufactured in the UK but can be delivered all over the world.

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