

BIDOX[®]

Biological
desulphurisation
of biogas



Colsen

water, energy & environment

BIDOX®

Application

Biogas contains corrosive elements, primarily characterised by hydrogen sulphide. Untreated biogas can cause severe damage to valorisation equipment such as a boiler, CHP or biogas upgrading system. This results in very high maintenance costs or permanent damage. The BIDOX® system guarantees a very low hydrogen sulphide output, which minimizes maintenance costs and damage to valorisation equipment.

The BIDOX® system is characterised by its low operational costs, since it needs no chemical addition. Due to the simplicity of the process only a limited amount of components and electrical consumers are required, resulting in a very low energy consumption.

References

Colsen has commissioned more than 25 BIDOX® systems in over 10 countries worldwide, treating over 16,500 cubic meters of biogas every hour. Some of the more recent installations are:

- ☛ **Waterboard Rivierenland – Tiel, the Netherlands,**
Sewage treatment plant
Reducing 2,000 ppm H₂S to less than 20 ppm
- ☛ **Shongweni - Durban, South Africa,**
Landfill
Reducing 14,500 ppm H₂S to less than 200 ppm
- ☛ **Cargill – Bergen op Zoom, the Netherlands,**
Starch industry
Reducing 2,000 ppm H₂S to less than 50 ppm
- ☛ **Liquats Vegetal – Viladrau, Spain,**
Plant-based beverage industry
Reducing 1,200 ppm H₂S to less than 20 ppm

Process

The sulphide containing biogas is treated by aerobic bacteria in a wet biological scrubber system. The bacteria convert H₂S from the biogas under aerobic conditions. A small amount of overflow from the scrubbing water is periodically drained from the BIDOX®. This BIDOX® drain can be treated in an existing wastewater treatment plant or it can be used as diluted sulphuric acid or herbicide.

The bacteria present in the BIDOX® only require a low amount of trace elements provided by Colsen's Nutridox® and little aeration, resulting in low operational costs. The open packing material and optimized scrubber design prevent the BIDOX® from clogging, ensuring a low maintenance system.



Result

- ☛ Low operational costs
- ☛ Biological process, no chemicals needed
- ☛ Limited maintenance
- ☛ Robust
- ☛ No process obstruction resulting from foaming or precipitation

