

BIDOX®

Biological desulphurisation of biogas

Application

One of the most efficient systems for the biological removal of sulphides from biogas is the BIDOX® (Biological Desulphurization by OXidation).

No chemicals are needed to operate the BIDOX® system. The installation requires limited maintenance, is equipped with little process control and manages to reduce the amount of H₂S in biogas to levels below 50 ppm. These features have a significant positive impact on the life duration and running costs of the CHP engine and efficiently facilitate the upgrade of biogas to natural gas quality.



Bidox® system

Biogas desulphurisation using the BIDOX® is not associated with odour emission, because the system is completely closed. In addition there is no need for internal cleaning or biomass discharge.

Process

The BIDOX® represents a fully automated and biological system in which biogas is treated in counter flow with washing water. During this treatment aerobic bacteria attached to the packing material inside the BIDOX® convert H₂S in the biogas almost entirely into sulphate.

The sulphate is discharged with the BIDOX® effluent in the form of very diluted sulphuric acid. The sulphuric acid can be further concentrated and marketed or can be discharged via the aerobic purification installation. Thanks to the removal of the H₂S corrosion damage to the CHP engine is prevented.

Results

Key descriptors	Value
biogas flow range	25 - 3.000 Nm ³ /hr
H ₂ S level reduction	from > 10.000 → < 50 ppm

The exploitation costs for the installation are low when compared to other biogas desulphurisation technologies. The power consumption of the BIDOX® system is in the order of 0,21 kWh/kg H₂S removed and the combined operational and maintenance costs mount up to around 0,10 - 0,25 € / kg H₂S removed. The majority of the maintenance costs are associated with the calibration of the measurement systems.

Process obstruction as a result of sulphur precipitation or foaming are not observed as a result of the low pH. For the purpose of a vital bacterial desulphurization community Colsen has developed a micro nutrient broth [Nutridox®](#).

EN-2015