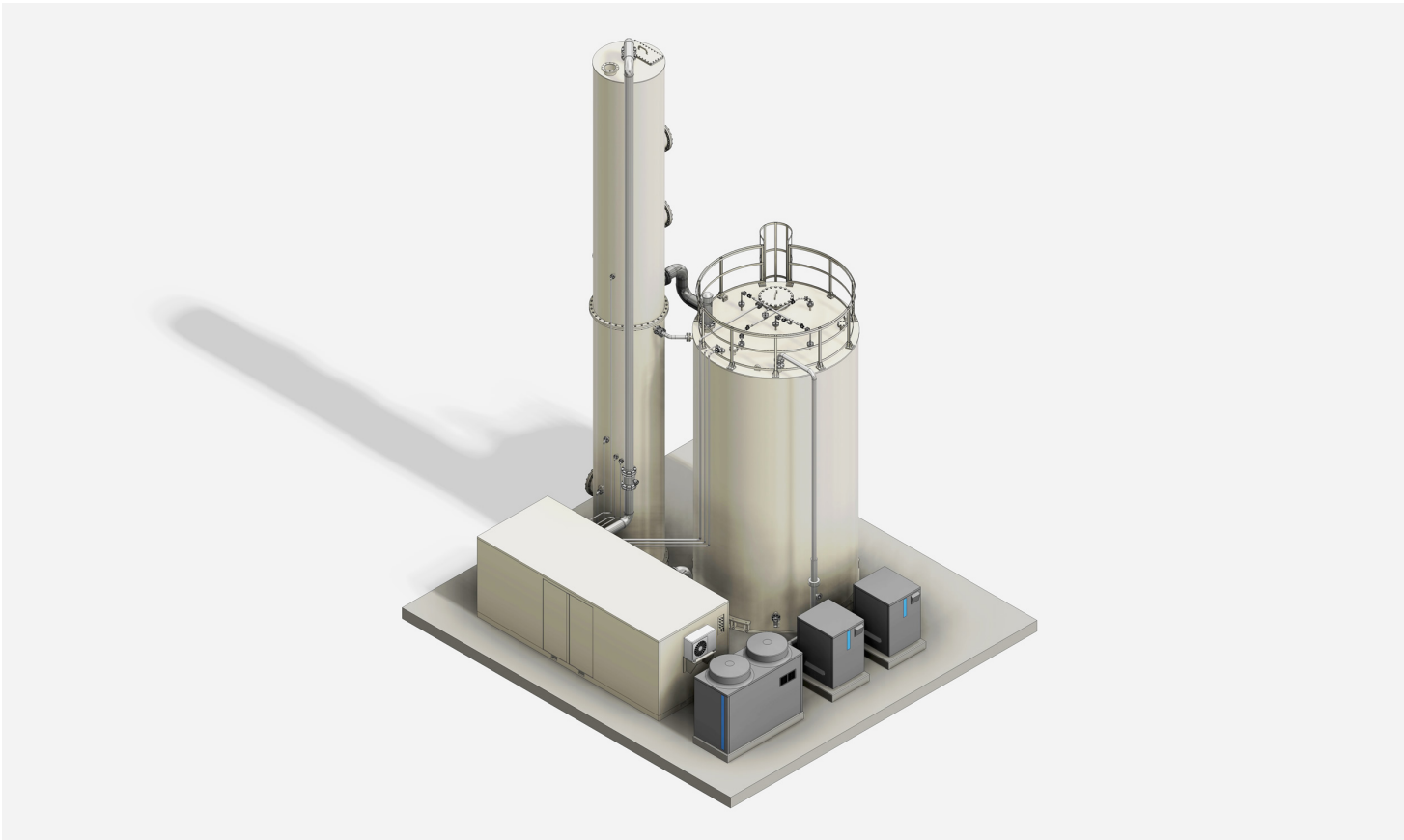


# meri BioSulph Biological Biogas Desulphurization



# meri BioSulph Biological Biogas Desulphurization

## Technology

Anaerobic Reactors are today state of the art in effluent treatment for Recycled paper Mills and other Industrial Productions with high Effluent Loads (e.g. Breweries, Food Production and others). Key benefit of Anaerobic Waste Water Treatment is the Production of Biogas.

Raw biogas from Anaerobic Reactors in Effluent Treatment contains not only methane (CH<sub>4</sub>) and CO<sub>2</sub>, but also hydrogen sulfide (H<sub>2</sub>S).

H<sub>2</sub>S is toxic, corrosive, and harmful to gas engines/pipelines, therefore, it must be removed before using or upgrading biogas.

Biological methods are preferred over chemical scrubbing because they are cost-effective and environmentally friendly.

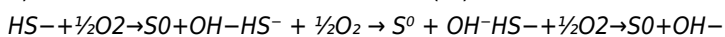
The Process comprises 2 Process Stages:

Washing in which the raw biogas is counter washed through a sprayed liquid phase (recycled water or a weakly alkaline solution). H<sub>2</sub>S is much more soluble in water than CH<sub>4</sub> or CO<sub>2</sub>, so it preferentially dissolves (H<sub>2</sub>S (gas) → H<sub>2</sub>S (dissolved) in the washing liquid (In slightly alkaline conditions, dissolved H<sub>2</sub>S can partly dissociate), as a result the Biogas leaving the scrubber has significantly reduced H<sub>2</sub>S content.

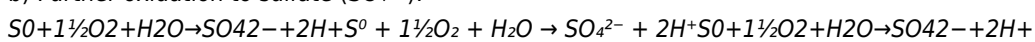
The washing liquid now contains dissolved sulfides (H<sub>2</sub>S, HS<sup>-</sup>, sometimes S<sup>2-</sup>).

The sulfide-loaded washing liquid is sent to an aerobic bioreactor containing sulfur-oxidising bacteria (SOB), which uses oxygen as an electron acceptor to oxidise sulfides.

a) Partial oxidation to elemental sulfur (S<sup>0</sup>):



b) Further oxidation to sulfate (SO<sub>4</sub><sup>2-</sup>):



Depending on process control (oxygen availability, pH), the system can be tuned to favor elemental sulfur recovery (valuable product) or full sulfate mineralization

The washing liquid is regenerated (sulfides removed), so it can be reused for the next biogas washing cycle, and the end products are elemental sulfur (solid, can be harvested) or sulfate in solution (may be discharged with wastewater).

## Features

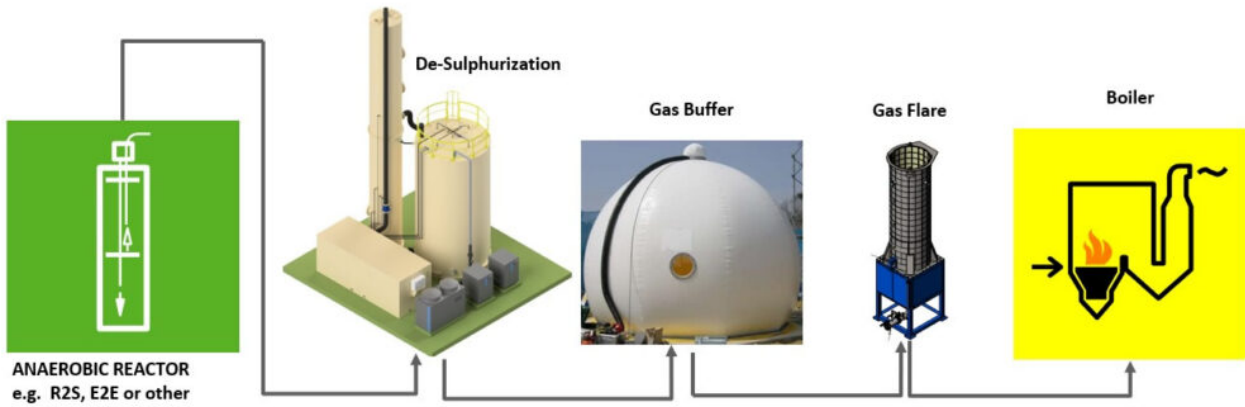
- Compact “all in one – 2 stage Desulfurization Process” with Biogas Scrubbing and sulfur oxidizing by biological bacteria in aerobic bioreactor.
- Modular design allows adaptation to different Process Characteristics and Capacities
- High Efficient Gas Scrubbing according to counterflow principal
- Efficient Compact Aerobic Bioreactor, easy to control, to reach elemental sulfur recovery (valuable product) or full sulfate mineralization.

## Why to buy

- Compact pre-installed meri BioSulph Biological Biogas Desulphurization with perfect integration to meri R2s, E2E or other Anaerobic Reactors.



### Typical Configuration of a Biogas Line



## **Typical & Proven Process**

- Desulphurization for Biogas Streams out of Anaerobic Waste Water Treatment with R2s, E2E or other Anaerobic Reactors

## **See the following Products as well**

- R2S Anaerobic Reactor
- E2E Anaerobic Reactor Series
- MERI Flare and Gas Buffers
- Circular Sedimentation Tank
- LimeTrap
- Tauro TAL
- DeltaPurge
- Vulcano
- GyroSand



**Meri Environmental Solutions GmbH**

Bodenseestr. 113  
81243 Munich, Germany  
Tel. +49 89 59 33 44  
info@meri.de

**Voith Meri Environmental Solutions, Inc.**

2620 E. Glendale Avenue  
P.O. Box 1262  
Appleton WI 54911-1262, USA  
Tel. +1 920 734-8485  
info@meriusa.com

**Meri Sistemas e Tecnologia Ltda.**

R. Friedrich von Voith, 825  
São Paulo – SP – 02995-000, Brasil  
Tel. +55 11 3944-6644  
meribrasil@meribrasil.com.br

**Meri Environmental Technology  
(Kunshan) Co.,Ltd.**

No. 665 Jiande Road, Zhangpu Town,  
Kunshan City, 215321 Jiangsu Province,  
China  
Tel. +86 51 28 68 90 834  
info@meri.cn

[www.meri.de](http://www.meri.de)



**Note:** All product-related data and information in this publication shall serve for information purposes only. They shall not be interpreted or intended to represent any kind of warranty or guarantee. The only legally binding statements are those contained solely within our quotations. Errors and omissions excepted. Technical data are subject to change.