



# SULPHUS

## HYDROGEN SULPHIDE

Hydrogen sulphide often results from the bacterial break down of organic matter, in the absence of oxygen, in waste water treatment plants. It is the chemical compound with the formula  $H_2S$ . This colourless, toxic and flammable gas is responsible for the foul odour of rotten eggs. Due to a very low odour threshold level, even small concentrations of  $H_2S$  can be smelled in a wide radius from manholes, pumping stations, treatment plants and industrial factories. This results in complaints from people living in an area close to the source of the odour and often leads to negative publicity, media attention and a bad reputation.

## ODOUR PERCEPTION

A solution to an odour nuisance problem is always a combination of dedicated measures within the boundary limits of a plant and the atmospheric dilution under various ambient conditions valid for the particular location of the plant. Background odour (other sources like industrial activities and traffic) can enhance or reduce the odour perception as well as influence the appreciation of the type of odour. In practical terms one must accept that an odour abatement system can do no better than remove the odour from the raw gas at an efficiency of 85 to 95% in terms of Odour Units.

## EXTENSIVE EXPERIENCE IN ODOUR EMISSIONS

Pure air solutions has extensive experience in odour emissions from wastewater treatment plants and supplies biological and chemical solutions that provide astonishing treatment results for your emission problems. Both our biological SULPHUS and our chemical scrubber have successfully been implemented at municipal and industrial waste water treatment plants.

## A COST EFFECTIVE SOLUTION

The SULPHUS is a compact biotrickling filter for reliable and highly effective removal of hydrogen sulphide ( $H_2S$ ) and other primary sources of wastewater odours, including ammonia, mercaptans and amines.

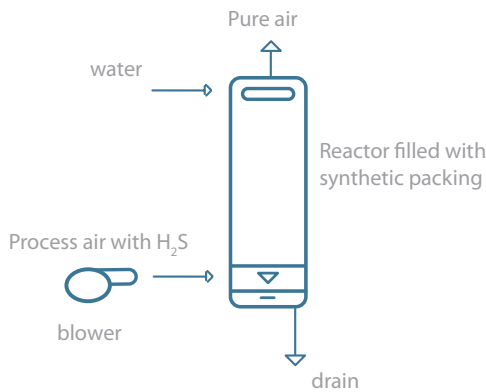
The SULPHUS is a cost-effective alternative which requires no chemical oxidising agents, produces no potentially harmful by-products and is more efficient than any other technology.



- Owing to its construction and its height, the SULPHUS needs less surface area than conventional technologies;
- Due to the use of synthetic filter media, the media lifetime is guaranteed because all materials used are resistance against sulphuric acid;
- The fully automatic (remote) control guarantees optimum conditions inside the system and generates data for optimum control;
- The design and the carrier material make it possible for the unit to withstand very high loads. It is therefore compact and achieves high efficiency at very low cost.

## PROCESS CONTROL

The SULPHUS is fully automated with PureControl and can function as stand-alone units or integrated into the plant control system. It can also be quickly and easily installed. Operation of the SULPHUS needs small amounts of utilities (water, power) and requires minimum attention and maintenance. The SULPHUS removes wastewater odours with a removal efficiency of up to 99%, without the use of costly chemicals or adsorptive media. For the treatment of wastewater odours the SULPHUS is an unmatched solution.



## SPECIFICATIONS AND BOUNDARY CONDITIONS

<b>Size</b>	the SULPHUS is available with different diameters and heights (up to 14 m)
<b>Carrier material</b>	different volumes of synthetic materials in one or more layers
<b>Efficiency</b>	between 80% and 99% depending on the requirements, the composition, and the air conditions
<b>Volumetric flow</b>	between 1.000 and 500.000 m <sup>3</sup> /h air may be processed by one or more units
<b>Temperature</b>	between 15 and 40 °C. Air is being conditioned at different temperatures
<b>Concentration</b>	10 - 5.000 mg H <sub>2</sub> S / Nm <sup>3</sup> are purified perfectly by the SULPHUS
<b>Auxiliaries</b>	Nutrients for nourishment and extra water to compensate for the drain water
<b>Energy</b>	the SULPHUS is characterised by its low energy consumption (< 1 kWh / 1.000 Nm <sup>3</sup> )

## THE BIOTRICKLING PRINCIPLE

The SULPHUS process is based on biotrickling. Biotrickling is a proven technology involving the decomposition of H<sub>2</sub>S by a host of micro-organisms. Optimised conditions are created in the system by controlling certain parameters, such as temperature, pH value and salt content. The micro-organisms responsible for the decomposition form a biofilm and are immobilised on the carrier material. This accelerates the degradation and shortens the acclimatisation period.

## ADVANTAGES OF THE SULPHUS

- Very low running costs
- Good removal of H<sub>2</sub>S and related odours
- No use of chemicals
- Standardized product
- Synthetic packed carrier material
- Very reliable 365d/365d performance
- Large void space
- Large loadings
- Extreme low pressure drop



## OUR PRODUCTS AND SERVICES

- Modulair biofilter
- Custom made biofilter
- Vocus
- Sulphus
- MP-X gas scrubber
- MP-V gas scrubber
- OCC solution
- Venturi scrubber
- Heat exchanger
- Precon
- Refillings
- Dispersion and process modeling
- Monitoring and service