



**ADSP**

Advanced  
Desulphurising  
System  
Process



Tecnoimpianti  
#Providing**Solution**

SO<sub>2</sub> REMOVAL

A desulfurizer is an essential device in biogas and biomethane production plants, designed to remove hydrogen sulfide (H<sub>2</sub>S) from raw biogas.

Hydrogen sulfide is a corrosive gas and toxic which must be separated from methane as it can damage the equipments and reduce the efficiency of the plant.

**The use of a desulfurizer ensures the protection of the upgrading plants and improves the quality of the biogas and biomethane produced.**

## OPERATION

### HOW A DESULPHURISER FOR BIOGAS AND BIOMETHANE PLANTS WORKS.

#### Operating Principle

**TECNOIMPIANTI** desulfurizers work mainly through a multiple principle which involves both a physical and chemical absorption process of hydrogen sulfide in a solvent. Both methods are effective in removing hydrogen sulfide, but vary in complexity and operating costs.

**REGENERATIVE CHEMICAL SCRUBBER** uses a chemical solution based on iron complexes, to convert the sulfide ion into sulphur, an immiscible solid that is separated mechanically. In this system the solution is reactivated thanks to the introduction of air into a tank, whereby the final consumption of reagent is reduced to almost zero, while **the abatement efficiency remains at values that can reach 90%.**

**CAUSTIC CHEMICAL SCRUBBER** uses a chemical solution with sodium hydroxide (NaOH) to neutralize H<sub>2</sub>S and therefore promote solubilization of hydrogen sulfide in the aqueous solvent. Soda reacts with the ion produced by H<sub>2</sub>S dissociations, thus increasing the overall removal yield (dissociation is favored). By operating at high soda concentration values, **very high removal yields can be obtained (even 99% in some cases).**

## ADVANTAGES

### THE ADVANTAGES OF USING A DESULPHURISER.

#### Multiple Benefits

#### IMPROVEMENT OF GAS QUALITY

The removal of H<sub>2</sub>S produces higher quality biogas and biomethane, suitable for combustion in boilers, internal combustion engines, turbines or for feeding into the network.

#### EQUIPMENT PROTECTION

The elimination of H<sub>2</sub>S reduces corrosion of pipes, compressors and other equipment, extending their useful life.

#### COMPLIANCE WITH ENVIRONMENTAL REGULATIONS

The treatment of biogas for the removal of H<sub>2</sub>S ensures compliance with environmental regulations regarding emissions of harmful gases.

## MAINTENANCE

### MAINTENANCE AND MANAGEMENT OF THE DESULPHURIZER.

*Regular maintenance of the desulphurizer is crucial for its optimal functioning.*

**REPLACEMENT OF ABSORBENT/ADSORBENT MATERIALS:** the absorbent and adsorbent materials must be replaced periodically to maintain the effectiveness of the process, while the technology of **TECNOIMPIANTI** does not require replacement, but only periodic cleaning.

#### PERFORMANCE MONITORING:

It is important to monitor the inlet and outlet H<sub>2</sub>S concentration to evaluate the efficiency of the desulfurizer. I can know exactly when maintenance activity is necessary, thus avoiding costly activities based solely on the period and not on performance.

## CONCLUSIONS

The **TECNOIMPIANTI** desulfurizer is an indispensable component in biogas and biomethane production plants, ensuring the effective removal of hydrogen sulfide and improving the quality of the gas produced.

**The choice of desulfurization technology depends on various factors, including the characteristics of raw biogas, operating costs and ease of maintenance.**

**Implementing a proper desulfurization system not only protects your equipment but also contributes to a positive environmental impact.**



# H<sub>2</sub>S REMOVAL

## **Tecnoimpianti Water Treatment S.r.l.**

Via Salvo D'Acquisto, 16/B - 20060 Pozzuolo Martesana (Milan - ITALY)

info@tecnoimp.com - T. +390295358203



[www.tecnoimp.com](http://www.tecnoimp.com)



**WATER**



**AIR**