BIOGAS DESULFURIZATION

Desulfurization is a fundamental process that utilizes biogas in co-generators and boilers. Fluence offers a solution featuring low operating costs and reduced consumption of chemical products.

The **desulfurization treatment,** i.e. the removal of sulfur compounds (H_2S hydrogen sulfide), is a fundamental process that uses biogas in cogeneration engines or boilers, in order to limit equipment corrosion.
In fact, hydrogen sulfide is a dangerous and corrosive gas.

Fluence desulfurizer is simple, reliable and has low operating costs, since it requires less chemical products compared to a classic caustic soda absorber and desulfurizers working with ferric chloride solutions.

The only chemical used is soda, and it is used in a lower quantity than the consumption of a similar soda absorber. The Fluence solution allows for the decrease in quantity of hydrogen sulfide to below 100-150 ppm.

fluence™

Description

Fluence desulfurizer consists of an absorption tower in which the biogas, passing from bottom to top, is washed in countercurrent with a saturated sodium bicarbonate solution.

The washing solution pH is kept at a value that does not absorb the carbon dioxide contained in the biogas, but that is enough to transfer the H_2S from the gas phase to the aqueous phase (in the form of hydrogen sulfide ion HS-).

The hydrogen sulfide ion is then oxidized to solid sulfur in an oxidation tank, where air is blown under controlled conditions.

Over time, the sulfur formed accumulates in the system in the form of suspended crystals. To extract it, a small portion of the desulfurizing solution is removed from the column-oxidation tank system and sent to a small decanter.

The thickened sulfur suspension is extracted from the bottom of this decanter, in addition to, as needed, a little bicarbonate solution that the system automatically replenishes.

The sulfur formed can be sent to the aerobic plant (where it is oxidized to sulphate), accumulated in special containers to then be disposed of or, if possible, transferred free of charge to companies active in the production of agricultural products (the sulfur produced has a good degree of purity).

Applications

Biogas plants for:

- Breweries and distilleries
- Paper mills
- Dairy farms
- Jam and candied fruit producers
- Vegetable/ Animal processing

Case Studies

- Brewery: Peroni - Padova, Italy
- Distillery: Distilleria Deta - Firenze, Italy
- Paper mill: Cartiera del Polesine - Rovigo, Italy
- Dairy Farm: Caseificio Moro - Treviso, Italy
- Lemon Processing: Alcovil - Tucuman, Argentina