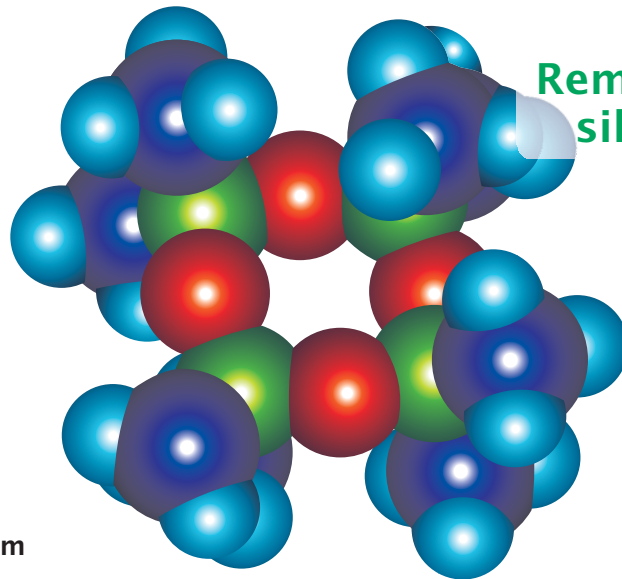


# GAS PURIFICATION



## Removal of siloxanes

Octamethyl cyclotetrasiloxane, one of many possible impurities

- Carbon
- Hydrogen
- Silicon
- Oxygen

### The problem

Silanes and siloxanes are silicon-based chemical compounds which are increasingly being used in many sectors of industry. The different silicon compounds pass via the waste route into purification plants or landfill sites. In modern recycling plants, the resultant biogas or landfill gas is used to produce electrical energy by means of gas engines. Burning siloxanes in a gas engine results in mineral silicon dioxide deposits which can cause serious damage. In many cases, this damage casts doubt on the cost-effectiveness of the use of biogas or landfill gas.

### The solution

HERBST UMWELTTECHNIK GmbH offers many processes which are suitable for removing siloxane compounds from gases. The best process depends on the volumetric flowrate of the gas to be purified and the amount of siloxanes which it contains.

### The processes

- Condensation of siloxanes using gas cooling followed by an activated charcoal reactor
- Separation of siloxane compounds using our iron hydroxide adsorber
- Removal of siloxane compounds using our absorptive HELASORP® process.

# THE PROCESSES IN DETAIL



## Cooling and condensation of waste gases

Where condensable siloxanes are mainly present in the flow of gas, our waste gas cooling installation will be used. The flow of waste gas is cooled to just above the freezing point. This makes it possible for the siloxanes to condense and be removed from the flow of waste gas. It is usually the case that cooling of the waste gas is followed by an activated charcoal column.

## Adsorption-process

If the siloxanes are in the average concentration range, our HERBST adsorber can be used. The gas which is to be purified passes through a column which is filled with a gas-purifying material. The siloxanes are deposited on the active surfaces of the material and are in this way removed from the flow of gas.



## Absorptive gas purification using the HELASORP® process

Where there are very high concentrations, the siloxane compounds can be removed from the flow of gas using our special HELASORP® liquid. The process is continuous. In this way, the siloxanes are absorbed by the HELASORP® absorber. In the desorber, the loaded

HELASORP® is regenerated and returned to the absorber. The desorbed harmful gases are removed from the process by being condensed into a liquid form. Alternatively, they can be transferred to a flare installation.