



## ■ Biological Trickle Bed-reactor

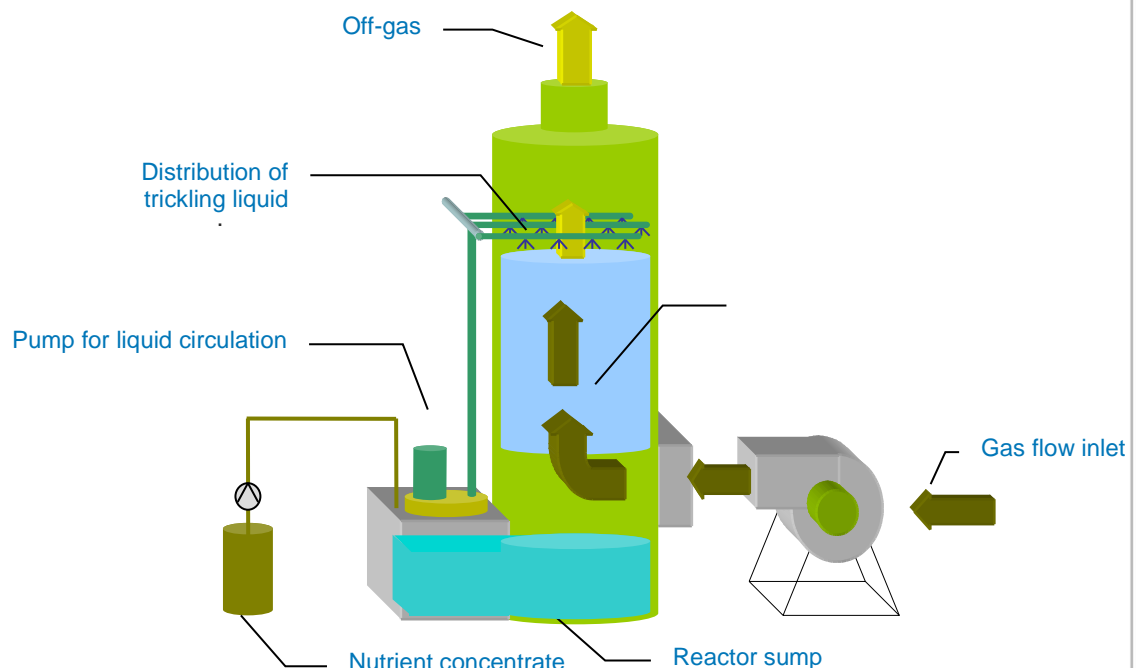
Lack of space, purification of waste gases with pH-relevant constituents or end products and applications where the sole use of a biofilter is not satisfying, require a different approach. Our offer for these cases is the biological trickle bed-reactor.

### Functional principle

The biological trickle bed-reactor has the same underlying technology as biofilters and bioscrubbers for waste gas purification. The biodegradation of the adsorbed and absorbed pollutants takes place in a biofilm. The main difference between biofilters and biological trickle bed-reactors is the nature of the biofilm support. Whereas biofilters use a natural filter medium, trickling bed-reactors use an inert fixed bed as support for the micro-organisms which will degrade the constituents of the contaminated air.

Whereas the construction resembles a packed bed column, the trickling rate of the liquid phase is too low for a scrubber application. The trickling liquid is only used to moisture the biofilm and to compensate for the evaporation loss caused by the waste gas flow.

In case of applications with pH-relevant constituents or end products the trickling liquid can be used to control the pH-value. In this way compounds like  $\text{NH}_3$  and  $\text{H}_2\text{S}$  and their end products of degradation  $\text{HNO}_4$  and  $\text{H}_2\text{SO}_4$  will not disturb the microbial activity.



### Characteristics

- Saves place by using available headroom rather than floor space
- No exchange of filter material due to inert carrier material
- Control of the ambient factors for the micro-organisms
- Sensors for pH and conductivity protected from clogging
- Dosing stations and piping are frost protected and equipped with catch basins

### Application examples

We recommend the use of a biological trickle-bed reactor for applications requiring odor reduction in waste air having high concentrations of  $\text{NH}_3$  and  $\text{H}_2\text{S}$  to protect the downstream biofilter. The two technologies complete each other in a perfect way, because the biological trickle-bed catabolizes the pH-relevant components and neutralizes their end products and the biofilter ensures the necessary residence-time for odor-elimination.

- Desulphurization of biogas
- Anaerobic waste water treatment
- Digester gas

