

# Waste Water Solutions

For industrial and commercial applications



## The problem

Wastewater from industrial and commercial sources often can not be clarified in municipal sewage treatment plants, partly for economic reasons, partly because of problematic ingredients or high concentrations. An in-house waste water treatment is needed that adapts perfectly and quickly to local conditions. Operation and maintenance should additionally require minimal occupation.



## The intention: a complete solution

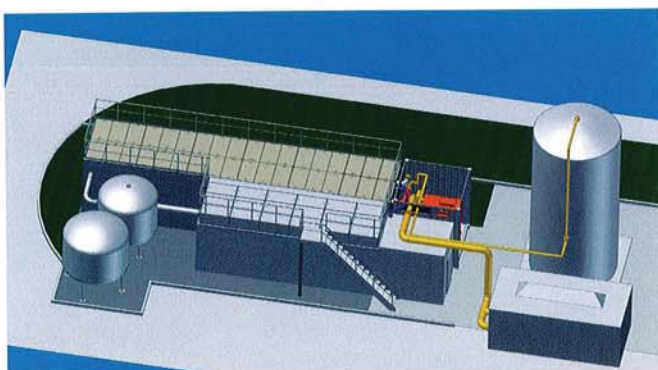
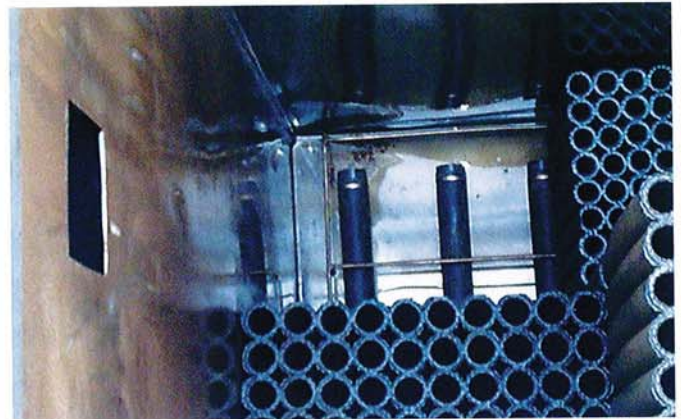
Many providers offer only partial solutions, e.g. Biological Sewage Treatment Plants without components for chemical or physical treatment, which are necessary for many industrial applications.

We offer complete solutions that combine all modern physico-chemical and Biological Wastewater Treatment Processes in consideration of a wide range of approved procedures. In our team of engineers, biologists, chemists and economists we develop all necessary steps of permission, design and construction up to a turnkey handover. Our after sales service will help you with qualified maintenance.

## The processes

After more than 20 years of experience, we have expert knowledge about the full range of proven water treatment processes. The chemical and physical treatment includes Stripping, Rectification and Membrane Processes. The Biological Wastewater Treatment Method will be chosen in relation to the requirements with free or fixed biomass.

In addition to our own, reliable technology with cascaded **Submerged fixed-bed (SFB)** we also work with other biological processes such as **Sequencing Batch Reactors (SBR)**, **Moving Bed Biofilm Reactors (MBBR)** or **Membrane Reactors (MBR)**.



## Planning with prevision

We analyse your actual Waste-Water Situation and the required sewage purification goals. Afterwards, we work out the complete treatment concept, involving the existing facilities. Using laboratory studies, degradation experiments and preliminary tests with laboratory water treatment plants, we can simulate the in-situ-conditions and use the results as a basis for planning. This allows particularly economical and small-scale solutions, with high process security. We attend the entire engineering - even regulatory requirements - and guarantee an efficient execution.

## Pilot tests and pilot plants

The complex tasks, e.g. the variation of wastewater flow and composition, often can be determined only by pilot studies.

We offer pilot studies with our mobile container equipment right at your place and develop the best treatment conditions within real environment.



## Turnkey systems - also for lease

After a successful trial run, the final system is designed and constructed by our experienced installation team and set into operation. The pilot plant can be integrated into the final concept. Referring to this, we offer interesting leasing conditions.

The rental of our container plants also makes sense for a temporary treatment of waste water e.g. during renovation projects and as interim solutions.

## References

We have a long time experience with numerous references. The wastewater treatment of the following industrial and commercial branches has been carried out successfully:

Plywood Production with Formaldehyde  
Oil regeneration  
Gasoline Storage  
Textile Dyeing  
Tar production

Food industry  
Bakeries  
Dairy / cream production  
Butcher / slaughterhouse  
Sausage production  
Fish processing

Juice production  
Breweries  
Landfill leachates  
Sludge conditioning  
Digestate

Groundwater Remediation  
Cosmetic industry  
Soap / detergent production  
Cokery  
Resin production

## Our areas of expertise:

### Droplet Separators



High-performance droplet separators with low pressure drop of vane, knitted wire mesh and radial type for horizontal and vertical gas flow direction, e.g. in

- columns
- all types of gas streams
- chimneys

made of various plastics and metals. In addition, we can provide special designs.

### Waste Air Treatment Plants

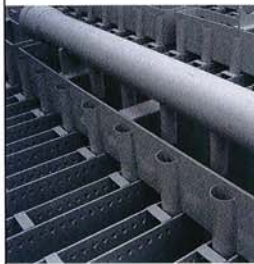


Engineering, construction, installation and commissioning of turnkey plants for removal of hazardous substances from waste air or gases, e.g.:

- NH<sub>3</sub>
- H<sub>2</sub>S
- SO<sub>2</sub>, NO<sub>2</sub>
- HF
- organics
- odours
- dust

Mobile pilot plants are available for testing at the customer's site.

### Column Internals



High-performance column internals to maximise the capacity and separation efficiency of rectification and stripping plants, gas scrubbers and extractors.

We offer an extensive portfolio:

- high-efficiency lattice packings
- gas and liquid distributors
- support and hold-down grids
- collecting trays and redistributors
- droplet separators

### Optimisation & Upgrading



It is often possible to optimise existing plants by using modern design methods and our highly efficient column internals.

In most cases, this results in an increased capacity and separation efficiency, which in turn can often lead to a reduction in operating costs.

Our services also include the energy optimisation of plant and apparatus.

### Research & Development



We have a research department with its own research centre equipped with plants for rectification, absorption and desorption up to DN 500 and for the biological treatment of exhaust air and wastewater.

In addition, we offer standardised tests of separation efficiency and fluid dynamics of structured and random packings in industrial relevant dimensions from DN 500-1000.

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