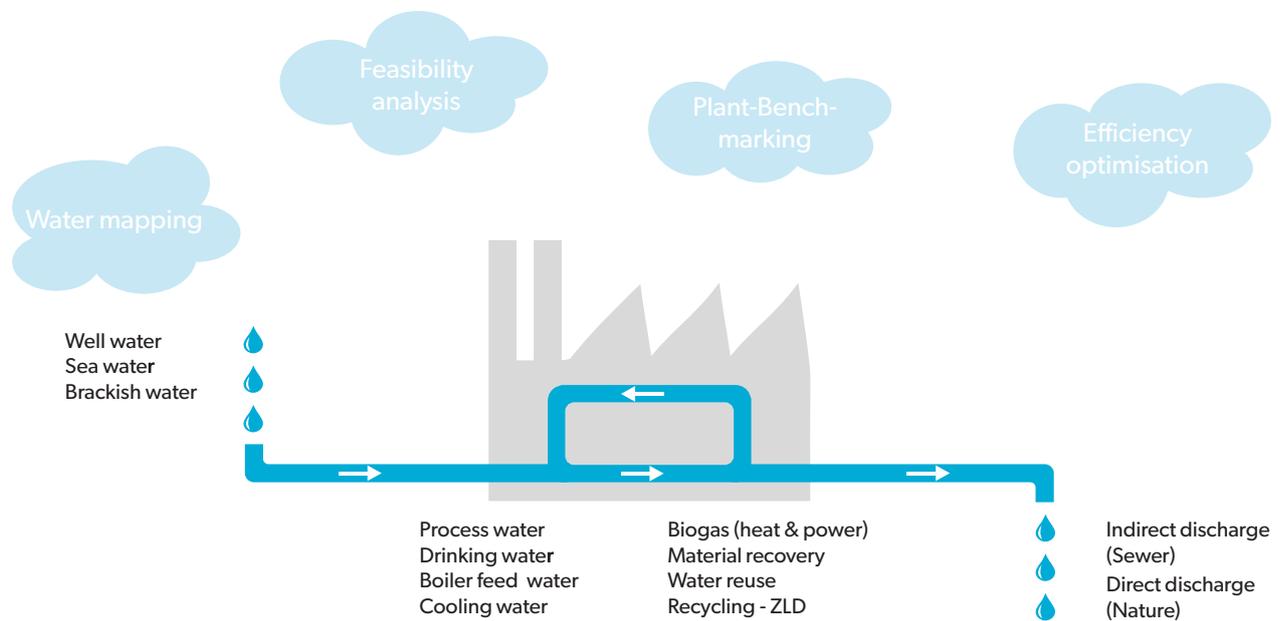


A firm grip on Water as a production factor – our range of solutions

Fresh water, process water, wastewater and water reuse – integrated solutions for these tasks require modern processes and process combinations. Decentralized plants from WEHRLE offer sustainable energy and cost efficiency to the industry.

Especially for factories with significant variations of wastewater throughputs and loads, WEHRLE’s high-performance plants offer a reliable and space-saving solution. WEHRLE’s highly automated control philosophy and operator interface enables a safe and reliable plant operation with a minimum of personnel costs.



Overview Process Technologies

Anaerobic biology

For high organic load for the production of biogas, respectively electricity and heat

BIODIGAT®-Family
For the removal of organically high loaded wastewaters

BIODIGEST®-Family
For organic material flow with very high up to mainly solid content

Aerobic biology

For very strongly varying wastewater throughputs and compositions

BIOMEMBRAT®-Family
High-performance-MBRs for highest requirements in stability and outlet quality

BIOSTREAM®-Family
Loop reactors for an energy efficient removal of high organic wastewaters with a minimum of space requirements

Membrane technologies

Systems for the filtration of water and separation of dissolved and undissolved substances

UF: For the retention of macro-molecules, particles, seaweeds, bacteria and viruses
NF: e.g. for softening of drinking water or as 3rd step of a wastewater treatment
RO: e.g. for the demineralization of water, among other things for boiler feed water

Process Water Treatment

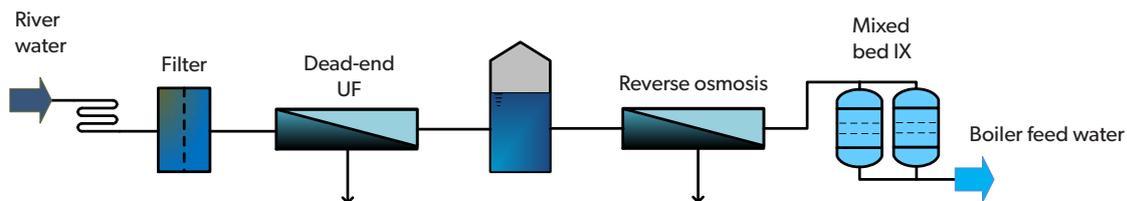
Treatment of river water to boiler feed water

Water is valuable, but should not be expensive. For industrial factories the price for treated process water is an important cost factor.

In this case membrane filtration plants are an economically interesting alternative to other processes, e.g. ion exchange. Depending on the requirements of the process water treatment, different filter- and membrane technologies can be combined, to achieve the required water quality with the lowest possible operation costs. The membrane plants are characterized by a particularly high availability and only a low demand in chemicals and therefore are a reliable and long-lasting solution for the generation of process water in the industry.



	Flow rate	Conductivity
Inlet	150 m ³ /h	1,100 µS/cm
Outlet	115 m ³ /h	< 0,2 µS/cm
Performance	> 75 %	> 99.9 %



Industrial Wastewater

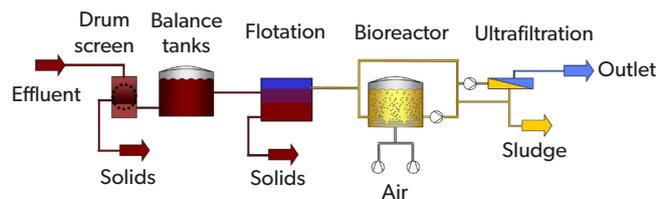
S.C. Cadbury, Bucharest / RO: Effluent treatment from sweets & chocolate production

WEHRLE's high-performance bioreactors are characterized by particularly high process stability and reliability especially in case of highly varying wastewater streams.

By using slim, tall reactors only a small foot-print is required also optimizing the aeration efficiency.

WEHRLE plants are no conventional industrial treatment plants – they are odorless and can be installed close to residential areas as well as workplaces without any problems.

Here:
BIOMEMBRAT® High-performance-MBR



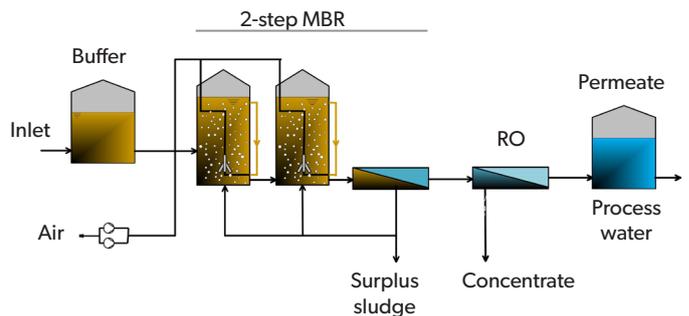
Flow rate	50 m ³ /d
Inlet COD	5,000 mg/l
Outlet COD	< 125 mg/l
Performance	> 97.5 %

Water Recycling & Zero Liquid Discharge

L'Oréal, Karlsruhe / DE: Industrial wastewater treatment with water recycling

Because of the high removal rate of pollutants in the wastewater and the particle-free effluent, the high-performance BIOMEMBRAT®-MBR is an ideal link to subsequent process steps. This ensures a reliable treatment, even on highly varying streams. Combined with different membrane technologies (Nanofiltration, Reverse Osmosis) and further process technologies is the most economic way to achieve a desired recycling rate and water quality – up till Zero Liquid Discharge.

Here:
BIOMEMBRAT®-MBR with Reverse Osmosis (RO)

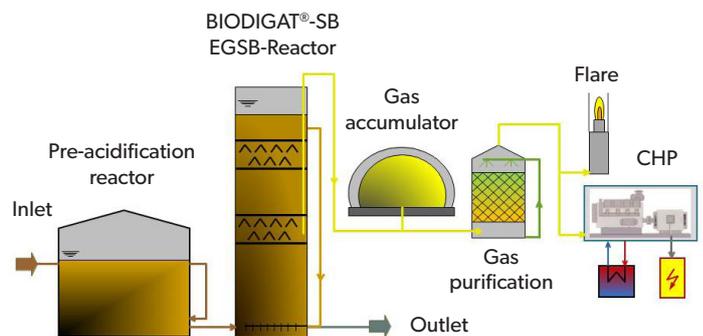


	Flow rate	COD
Inlet	120 m ³ /d	3,500 mg/l
Outlet	> 90 m ³ /d	< 15 mg/l
Performance	> 75 %	> 99.5 %

Generation of Biogas and Recovery of Materials

SONAC, Lingen / DE: Recovery of electricity and heat from production wastewater

For wastewaters with an economically useable high COD load WEHRLE provides different anaerobic processes – depending on the composition and concentration of the COD-proportion – this includes streams with high organic solid content, e.g. from the food or pharmaceutical industry. The generated biogas can be fed to a combined heat and power unit (CHP) ensuring additional revenue from the waste stream.



Further technologies allow the separation of nutrients or recyclable materials, as well as heat recovery from wastewater.

Here: BIODIGAT®-SB High-performance-EGSB-Reactor

Flow rate	466 m ³ /d
Inlet / COD	13,500 mg/l
Outlet / COD	2,700 mg/l
COD elim.	5,030 kg/d
Biogas yield	> 2,000 m ³ /d

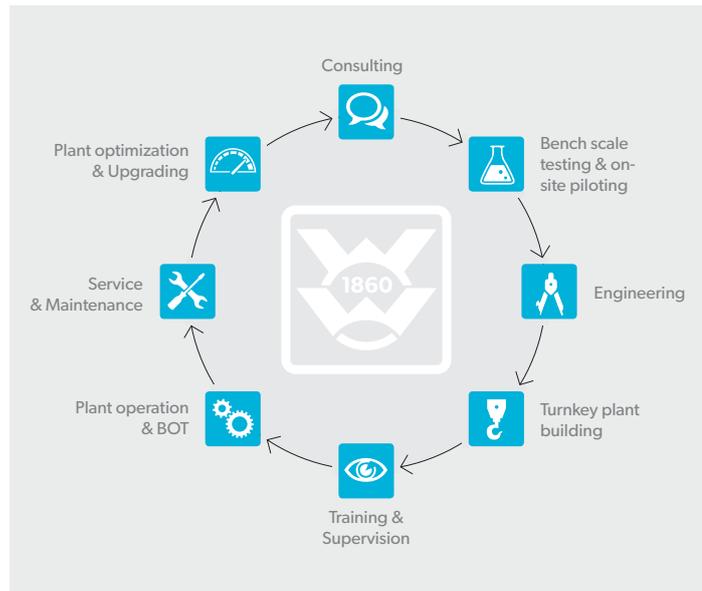


Services for the Industry

In addition to plant engineering and construction WEHRLE offers a full service package for industrial wastewater treatment:

- ▶ Consulting & Water Mapping
- ▶ Feasibility analysis & Piloting
- ▶ Plant-Benchmarking
- ▶ Plant efficiency optimization
- ▶ Plant performance increase
- ▶ Plant modernization
- ▶ Plant operation
- ▶ Rental plants for production peaks or maintenance shutdowns

Do not hesitate to contact us – we are glad to support you!



WEHRLE Umwelt GmbH

Plant engineering and services from one source

Since 1982 WEHRLE sets benchmarks as pioneer and technology leader for the treatment of very difficult and complex wastewater. The wide range of available process technologies allows intelligent process combinations, to fulfil the requirements and expectations of the client in the best possible way. WEHRLE consults, plans and builds plants and offers corresponding services such as piloting, efficiency optimization and retrofitting of existing plants.

Especially for applications in the industry factors beyond the used tech-

nology are important: a reliable performance to cater for variations of wastewater volume and loading of industrial wastewater (e.g. caused by seasonal production or changes of product lines) and by climate conditions, as well as a modular design for future upgrades of the production and simple operation, to enable an inexpensive outsourcing of the plant operation. The stable high effluent quality of WEHRLE plants allow an easy, optional upgrading, e.g. to reuse / recycle the treated water, saving cost for process water, heat and possibly water softening.

WEHRLE is dedicated to the company's history: As family-owned company reliability, longevity and openness with our clients and partners are our top priorities. The clients of WEHRLE trust in this philosophy – in over 40 countries and on 5 continents – like for example Clariant, Fonterra, Kellogg, L'Oréal, Chivas, Cadbury/Mondelez, Unilever and a lot more.

Contact

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Company video