

Waste and wastewater from waste – our core competence for 30 years

Effluents from waste (leachate) are highly polluted and must be treated efficiently before they can be discharged into a municipal sewage plant or a local watercourse.

Conventional treatment technologies do not suffice. Chemical processes are not economic due to the high pH buffer capacity of the leachate. Hardness and chlorides in the leachate are a problem for many plant components. Besides, process know-how and operating experience are indispensable for an effective elimination of the harmful ammoniacal nitrogen.

Certain processes also produce residues such as concentrates, which must be removed from the landfill body. This disposal is very expensive.

WEHRLE is a reliable and experienced plant constructor for those applications. The first leachate treatment plants were built in 1991 and have been in constant operation ever since. This is not only proof of excellent technology but also for sustainable efficiency with stable, predictable, low operation costs.



Waste transfer station



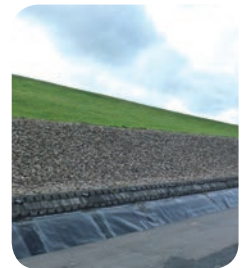
Bunker water



Waste Treatment, i.e. MBT wastewater



Open landfill



Capped landfill



Overview Process Technologies	
Conventional Process Technologies	Enhanced Process Technologies
Direct Reverse Osmosis (RO) Physical process for the separation of pollutants and salts from leachate	BIOMEMBRAT® MBR High-performance Membrane Bioreactor for a highly reliable and sustainable biological treatment of highly loaded leachate
SBR Basic technology for lowly loaded leachate in regions with rather constant climate conditions	BIOMEMBRAT® LE Energy-saving MBR Technology for medium and highly loaded leachate
	BIOMEMBRAT®-plus Hybrid process for highest discharge quality, also for persistent pollutants / direct discharge into a local watercourse – without concentrate production

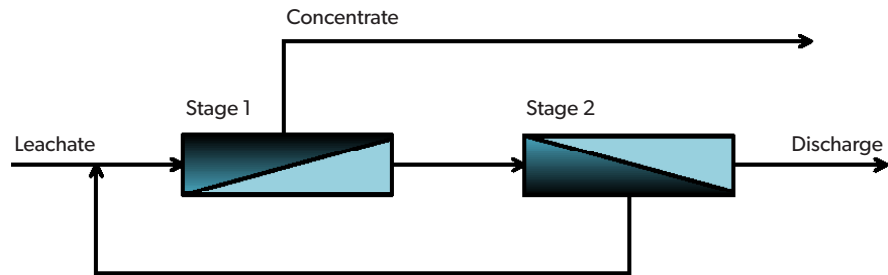
Direct RO (Reverse Osmosis)

Hazardous waste landfill Pernik / BG

The leachate treatment concept consists of a 2-stage Reverse Osmosis which can be upgraded to a 3-stage RO if required. The plant was designed as a turnkey containerised plant in order to ensure a time-saving and cost-effective installation on site.

The leachate of the hazardous waste landfill is treated to fulfill the criteria for direct discharge into a nearby river.

Flow rate	50 m ³ /d	
Component	COD	NH₄-N
Inlet	5,000 mg/l	200 mg/l
Outlet	< 70 mg/l	< 2 mg/l
Performance	> 98 %	> 99 %



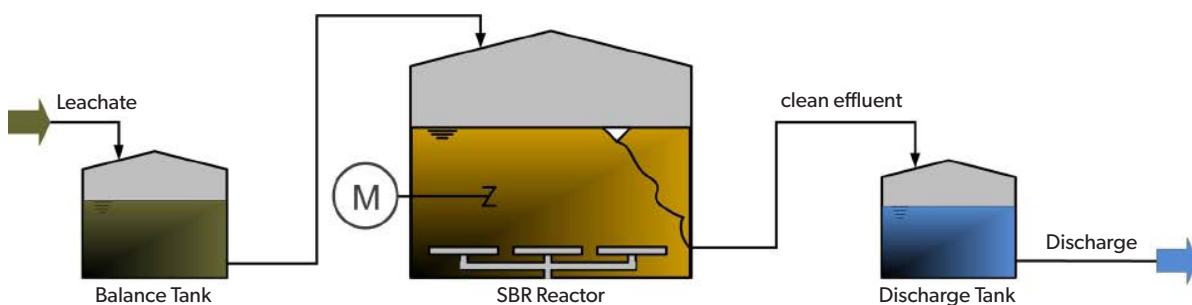
SBR – Sequencing Batch Reactor

BIFFA Waste Services Ltd., Risley / GB: Leachate from domestic waste landfill

Due to higher leachate generation, the existing leachate treatment plant consisting of two SBR reactors had to be extended. A third SBR reactor with modern aeration technology, new dosing stations and a complete automation system was built. Due to the integration of the existing plant system into the new plant and the installation of a new "state-of-the-art" plant control, the client benefits from a cost-effective solution to treat the leachate properly.



Flow rate	250 m ³ /d	
Component	COD	NH₄-N
Inlet	3,000 mg/l	1,600 mg/l
Outlet	1,350 mg/l	80 mg/l
Performance	> 55 %	> 95 %



BIOMEMBRAT® MBR – High-performance Membrane Bioreactor

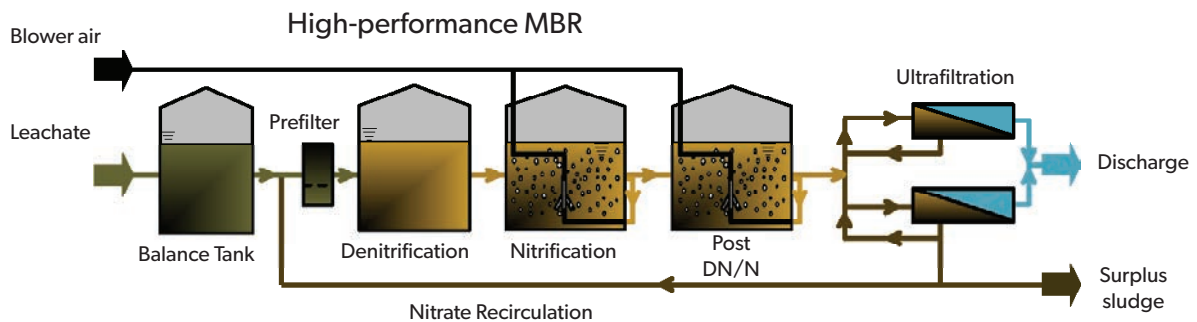
Waste to Energy Co. Ltd., Huancheng Incineration Plant, Shanghai / CN: Bunker water treatment

The high-performance MBR BIOMEMBRAT® is the most sustainable and reliable method for treatment of highly loaded leachate. This technology is very often used as single treatment step to achieve the quality for indirect discharge. The aeration system is very efficient, maintenance-free and designed for high performance, reducing electrical consumption. The tubular side stream membranes represent longevity and reduce chemical consumption to a minimum, achieved by automated CIP cleaning.

In Huancheng / Shanghai, the highly loaded bunker water is treated using this technology, installed on a small footprint, providing simple and reliable operation and ensuring discharge limits are met.



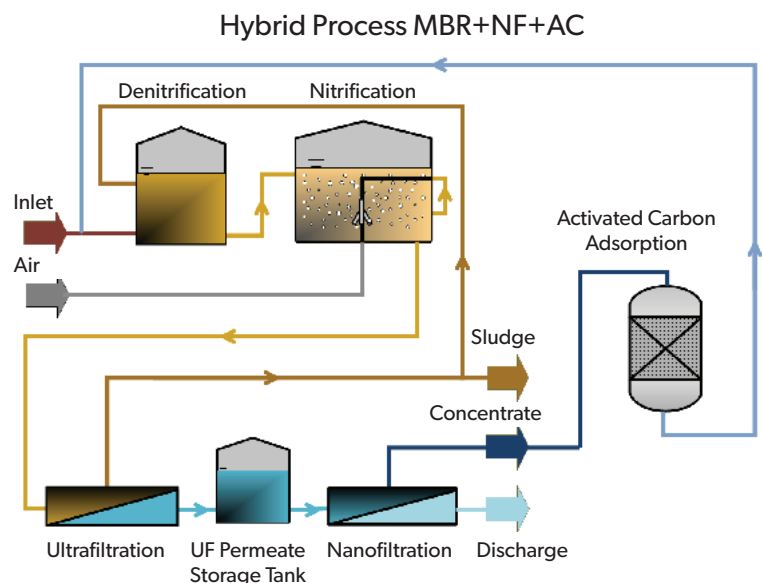
Flow rate	400 m ³ /d	
Component	COD	NH₄-N
Inlet	60,000 mg/l	2,000 mg/l
Outlet	1,000 mg/l	25 mg/l
Performance	98 %	98 %



BIOMEMBRAT® plus – High-performance Hybrid Membrane Bioreactor

Land Tirol, Riederberg / AT: high discharge quality without concentrate emissions

WEHRLE's BIOMEMBRAT® plus process achieves discharge qualities for direct discharge into the receiving water body without the requirement to dispose of concentrates from the last treatment stage. This is achieved by the use of activated carbon which can be loaded 2-3 times higher compared to direct treatment. This considerably reduces the operation costs.

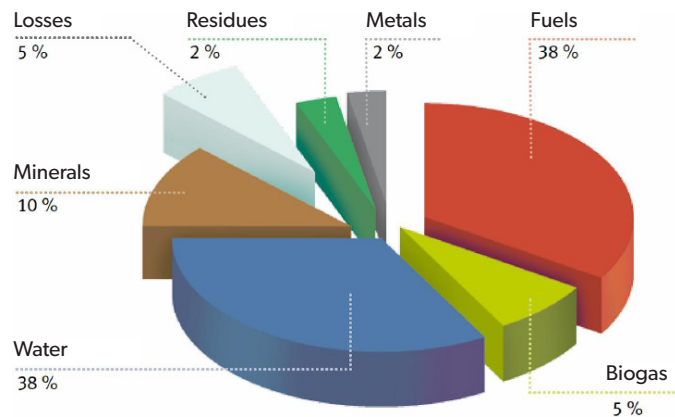


Flow rate	100 m ³ /d		
Component	COD	NH₄-N	AOX
Inlet	15,000 mg/l	3,500 mg/l	2 mg/l
Outlet	< 300 mg/l	< 200 mg/l	< 0.5 mg/l
Performance	> 98 %	> 94 %	> 75

MYT®: high quality Refuse-Derived Fuel from unsorted municipal solid waste

The MYT® Process (Maximum Yield Technology) produces a high quality refuse-derived fuel (RDF) rich in energy and low in chloride, from unsorted waste. This RDF is suitable for power stations, cement plants or a subsequent gasification.

The first of those plants is in operation since 2006, operated by ZAK Ringsheim/Germany and has proven its excellent reliability as one of the most sustainable and cleanest waste treatment technologies worldwide.



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 also offers corresponding services such as piloting, efficiency optimisation and retrofit of existing plants.

The treatment of leachate or other effluents from waste is WEHRLE's core business, having built over 200 references. The first plants have been in operation for over 25 years proving highest technological reliability and economic sustainability to an extent that no other technology on the market can offer. Thanks to the incomparable application know-how gained over the years, WEHRLE consults landfill operators and also constructs and operates leachate treatment plants.

WEHRLE is dedicated to the company's history: As family-owned company, reliability, longevity and openness with clients and partners are our top priorities. The clients of WEHRLE trust in this philosophy – in over 40 countries and on 5 continents.

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Company video