



Evaporation technology by
ENVOTHERM®

**Experts in treatment
and recycling of
industrial wastewater**

ENVOTHERM – Smarter Wastewater Recycling

ENVOTHERM develops innovative systems for recycling industrial wastewater. Since 2007, the company has focused on continuous development and real-world testing to prove the strength of its unique product platform.

In 2022, ENVOTHERM became part of the ANMASI Group, enabling further growth and broader reach. The vision is clear: to create wastewater treatment solutions that are both environmentally friendly and financially viable.

The Technology

(AIRLESS VAPOURING)

ZLD with E•MVR Technology

ENVOTHERM's Zero Liquid Discharge (ZLD) systems use advanced evaporation to remove all pollutants from industrial wastewater – allowing up to 98% of the water to be reused. Thanks to the patented E•MVR technology, the system runs continuously, and reuses heat internally, reducing energy consumption by up to 66%. This makes it one of the most efficient and resource-saving solutions on the market.

Reduce
wastewater
in your production
by 90-98% with an
ENVOTHERM solution

Application Areas

ENVOTHERM units treat industrial wastewater from almost any source – as long as water is the main component. Suitable for a wide range of applications.

Hereby some of the application areas:

- ◆ Cutting fluids and other oil-bearing wastewater
- ◆ Wastewater from alkaline cleaning
- ◆ Rinsing water carrying TEFLON and heavy metals
- ◆ Process water from various industries: glass production- galvanic-ball polishing etc.
- ◆ Separation of organic matter in general
- ◆ Die casting: Oil, soap, heavy metals etc. are all separated effectively.



ENVOTHERM Technology

Zero Liquid Discharge with E•MVR Technology

ZLD stands for Zero Liquid Discharge – a wastewater treatment technology that separates all pollutants from A. The purified water can be reused again and again. By using a ZLD evaporator, wastewater treatment is optimized while saving valuable resources.

Reduced Waste Through Advanced Evaporation Technology

With Envotherm's patented E•MVR technology, wastewater volume is reduced by 90–98%.

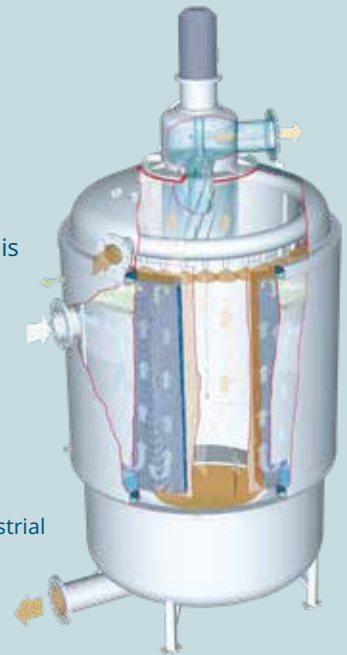
This significant reduction allows large amounts of process water to be reused, lowering the overall environmental footprint of your production. Unlike traditional vacuum evaporation systems that operate in batches, E•MVR works continuously.

Wastewater flows steadily into the evaporation chamber, and the compressor runs without interruption, keeping heat within the process. This results in outstanding energy efficiency – using as little as 20 kWh per cubic meter of treated water.

Heat Exchanger Innovation

The core of the system is the reuse of outgoing steam to heat incoming wastewater. This smart use of energy reduces overall consumption by up to 66% compared to conventional systems.

Envotherm holds a strong market position due to its patented technology, tailored to most industrial wastewater segments.



The advantages

ENVOTHERM E•MVR contains many advantages compared to similar systems.

Low energy consumption (15-60kWh/m³)

- 💧 Low Chemical consumption
- 💧 Low maintenance cost due to patent construction design
- 💧 Intergrated mechanical defoamer
- 💧 High degree of separation - Wastewater is separated into distilled (Clean water) and a waste concentrate of only 3-15% of the original quantity
- 💧 All heavy metals are effectively removed e.g.: Chromate (Cr), Nickel (Ni), Cadmium (Ca) etc.
- 💧 Low COD after treatment is needed.
- 💧 Complete monitoring system
- 💧 Siemens touch screen and intuitive software



TYPE	ZLD 0.5	ZLD1	ZLD2	ZLD3	ZLD4	ZLD5	ZLD6	ZLD7	ZLD10
RATED CAPACITY M3/YEAR (EST.)	500	750	1500	2200	3000	3800	6800	8500	14000
ENERGY CONSUMPTION KWH/M³	60	45	40	38	35	30	25	22	20
LENGTH MM	1662	1200	1500	2000	2000	2000	3000	4000	4000
WIDTH MM	1004	800	1000	1000	1000	1500	2000	2500	2500
HEIGHT MM	2200	1850	2250	2250	2250	2500	3000	4500	4500
WEIGHT KG	950	1550	1850	2100	2400	1750	4000	6500	8000
SUPPLY VOLTAGE	400/440	3X400V+ N-PE	3X400V+ N-PE	400/440	400/440	400/440	400/440	400/440	400/440
SUPPLY FREQUENCY	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60

Why Wastewater Treatment Matters

Wastewater is a serious environmental burden that can have harmful effects on our surroundings if not properly managed and disposed of.

That's why effective wastewater treatment solutions are essential – ensuring that water is thoroughly cleaned before being released back into nature.

Disposing of industrial wastewater is a critical task that calls for efficient and environmentally friendly methods.

Common treatment processes include physical, chemical, biological, and thermal treatments – as well as water reuse and recycling. An Envotherm system combines thermal treatment and water reuse.

The Complete ENVOTHERM Solution

ENVOTHERM's technology provides companies with a reliable, cost-effective and future-proof solution for treating process and wastewater.

1. Pre-filtration and pH Adjustment

- 💧 The wastewater first passes through a belt filter or pre-filter to remove impurities and solid particles.
- 💧 After pre-filtration, the pH level is adjusted to optimize the following treatment process.

2. Evaporation System – The EVR Method

- 💧 ENVOTHERM's advanced evaporation technology ensures highly efficient wastewater treatment.
- 💧 With low energy consumption, process water is converted into clean distillate that can be reused in production.
- 💧 The evaporation system minimizes waste volume, significantly reducing

disposal costs.

3. Activated Carbon Filter – Ensuring Purity

- 💧 This step eliminates remaining organic compounds and ensures the treated water meets the highest quality standards.
- 💧 After evaporation, an activated carbon filter is recommended to remove any unwanted smells or trace substances.



Before Evaporator

PH SICAL-CHEMICAL PARAMETERS		
PH-value (laboratory)		10,2
Conductive at 25°	µS/cm	38000
ANIONS		
Chloride (CL)	Mg/l	1100
Sulfate (SO)	Mg/l	1000
Total cyanide	Mg/l	0,34
SUMMARY PARAMETERS		
Oil+fat (total)	Mg/l	i.k
Oil (non-polar fraction)	Mg/l	i.k
Sediment	Mg/l	<0,033 (lod)
Suspended solids	Mg/l	560
INORGANIC TRACE ELEMNTS		
Arsenic (As)	µS/l	195
Lead (Pb)	µS/l	12700
Cadmium (Cd)	µS/l	69,7
Chromium (Cr)	µS/l	7100
Copper (Cu)	µS/l	13600
Mercury (Hg)	µS/l	<0,0300 (LOD)
Molybdenum (Mo)	µS/l	5750
Nickel (Ni)	µS/l	16800
Selenium (Se)	µS/l	29,6
Silver (Ag)	µS/l	23
Zinc (Zn)	µS/l	173000
cobalt (Co)	µS/l	0,757
tin (Sn)	µS/l	3,35

After Evaporator (Without any post postprocesses)

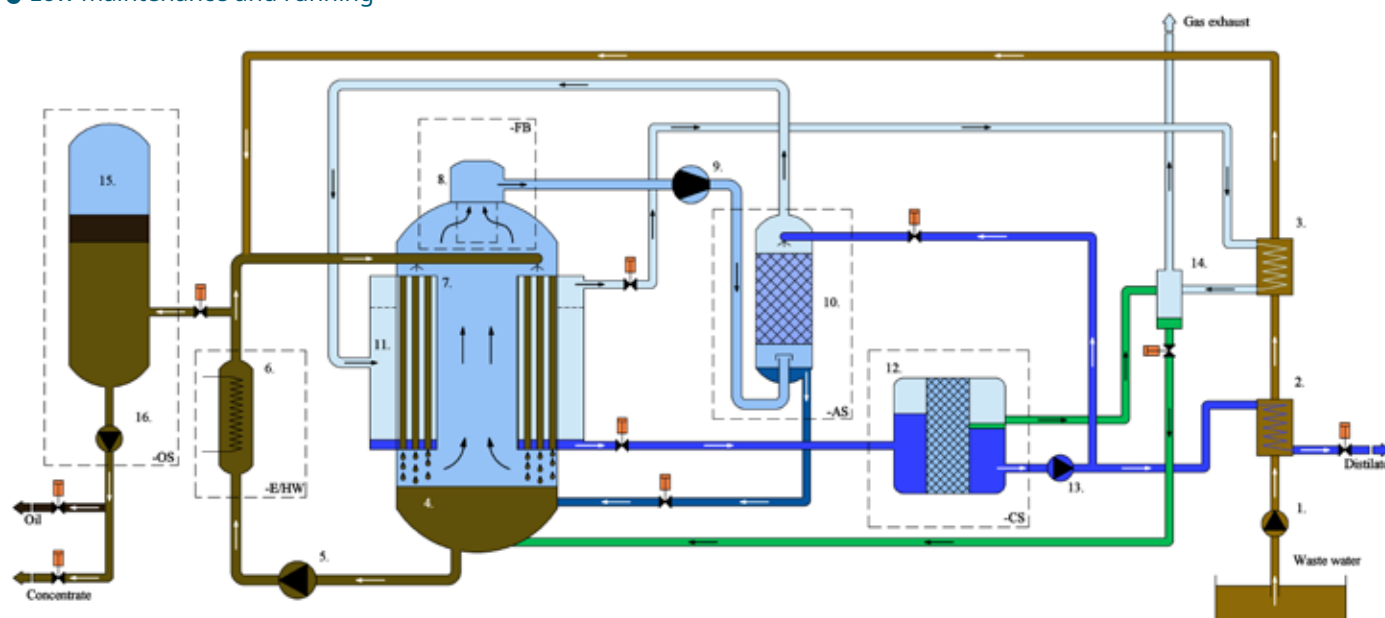
PH SICAL-CHEMICAL PARAMETERS		
PH-value (laboratory)		10,4
Conductive at 25°	µS/cm	470
ANIONS		
Chloride (CL)	Mg/l	<1,0(+)
Sulfate (SO)	Mg/l	7,2
Total cyanide	Mg/l	<0,010 (lod)
SUMMARY PARAMETERS		
Oil+fat (total)	Mg/l	280
Oil (non-polar fraction)	Mg/l	9,8
Sediment	Mg/l	<0,033 (lod)
Suspended solids	Mg/l	6,4
INORGANIC TRACE ELEMNTS		
Arsenic (As)	µS/l	4,9
Lead (Pb)	µS/l	<1 (lod)
Cadmium (Cd)	µS/l	<0,03 (lod)
Chromium (Cr)	µS/l	7
Copper (Cu)	µS/l	26
Mercury (Hg)	µS/l	<0,0300 (LOD)
Molybdenum (Mo)	µS/l	2,6
Nickel (Ni)	µS/l	9
Selenium (Se) (Se)	µS/l	<0,24 (+)
Silver (Ag)	µS/l	<1 (lod)
Zinc (Zn)	µS/l	<90 (+)
cobalt (Co)	µS/l	<0,010
tin (Sn)	µS/l	0,06


Lab Report Summary

This lab report presents heavy polluted wastewater values from a Danish railway company, measured before and after treatment using our ZLD (Zero Liquid Discharge) unit. The results show a significant reduction across all parameters — and notably, this has been achieved without the use of activated carbon. If activated carbon is added, both conductivity and oil/fat residues can be completely eliminated.

Installation strength and Flow Chart overview

- 💧 Low energy consumption
- 💧 Low maintenance and running





Built to last -
lower costs, less
maintenance
and smaller
environmental
Footprint

PURE WATER LESS ENERGY

Installation – RUN IN

ENVOTHERM E•MVR systems comes as a compact unit ready for installation

All processes in our installation are supervised and controlled by the team and we secure the correct run-in of the systems for optimal performance

E•MVR systems are designed to save space as they are installed in compact units.

E•MVR systems allow you easy maintenance and the compact size are optimizing the production space for your benefit.

Service

ENVOTHERM E•MVR systems are well proven and documented over the years with basis in naturally functioning processes. This is your security for low service- and maintenance cost.

ENVOTHERM will happily enter into individual service contracts where your ENVOTHERM evaporator will be monitored constantly online.



Evaporation technology by
ENVOTHERM

Thorsvej 240, Grindsted, DK-7200, Denmark
(+45) 7365 0900
info@anmasi.dk
www.envotherm.dk