WEHRLE

SPACE SAVING & COST EFFECTIVE FOR LEACHATE TREATMENT IN INDONESIA

GERMAN – INDONESIA BUSINESS FORUM

20TH OF SEPTEMBER 2022

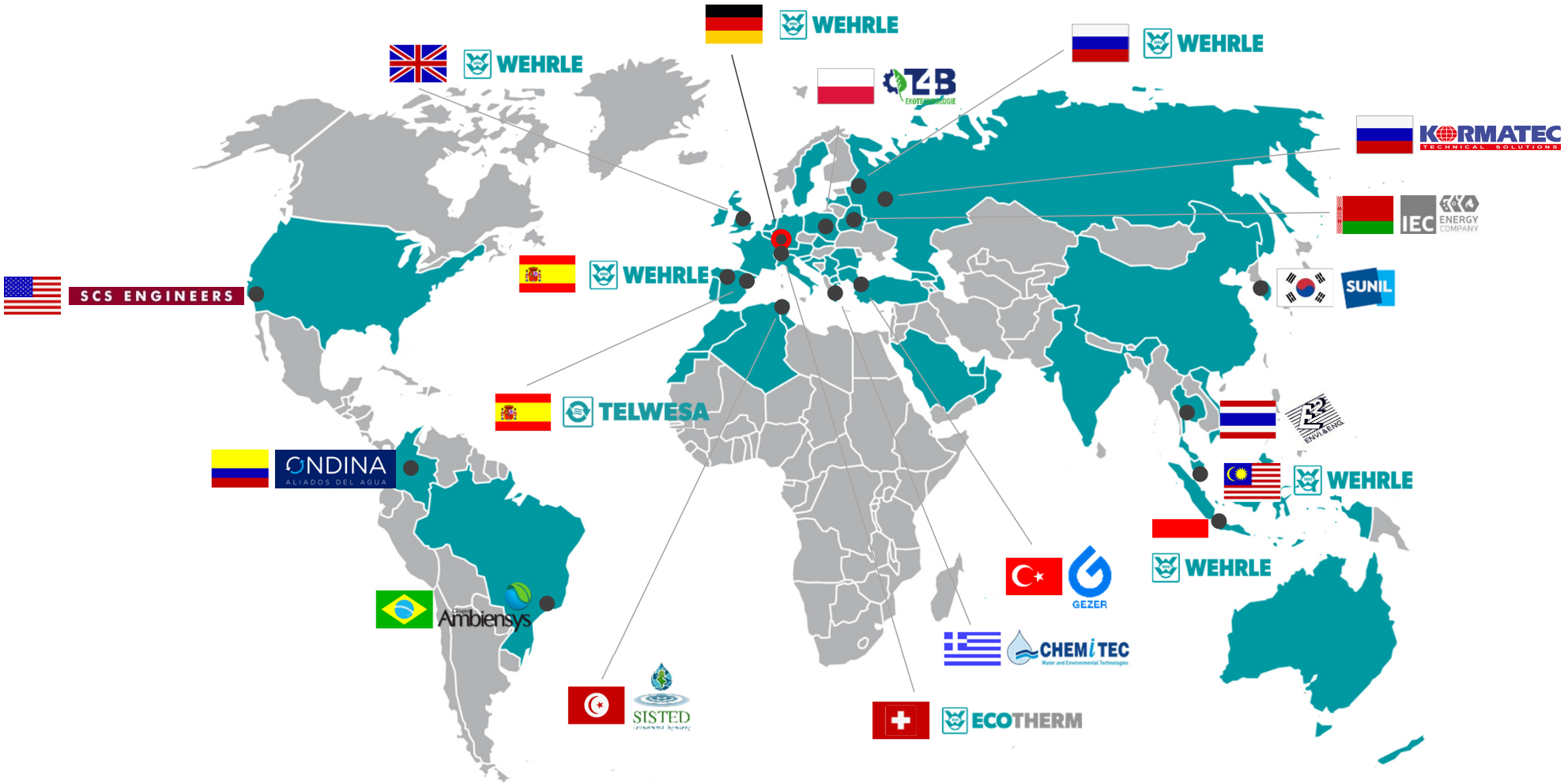
HAMBURG, GERMANY

Energy Technology · Environmental Technology · Manufacturing

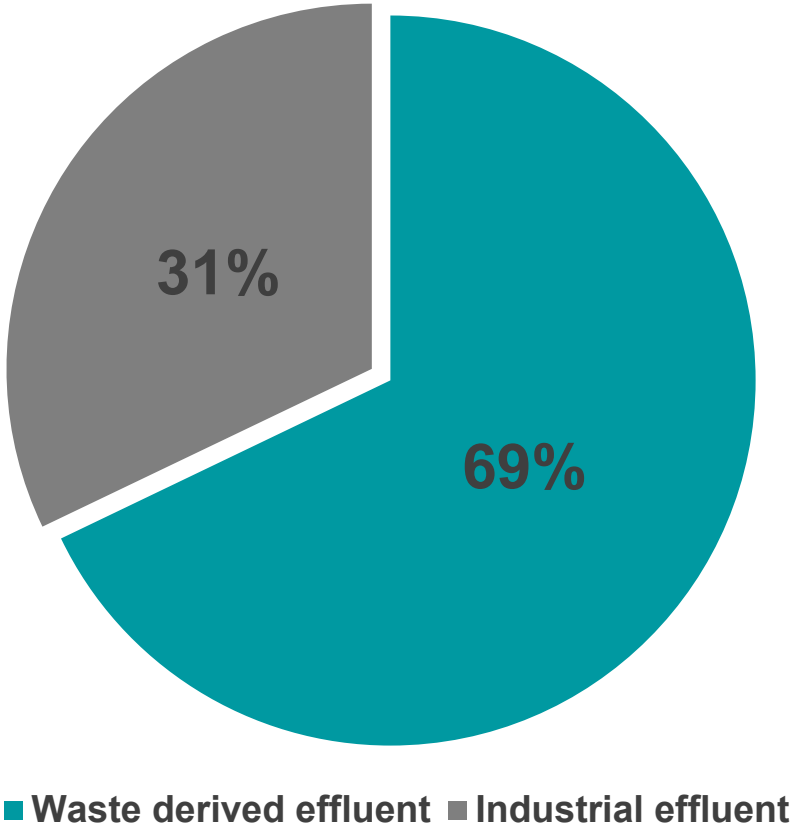
WEHRLE TODAY

- Founded in **1860**
- active **worldwide**
- **> 260** employees
- **100 %** family owned
  (5th/6th/7th generation)
- **≈ 50 %** equity ratio
- **≈ 55 M$** sales

WEHRLE TODAY

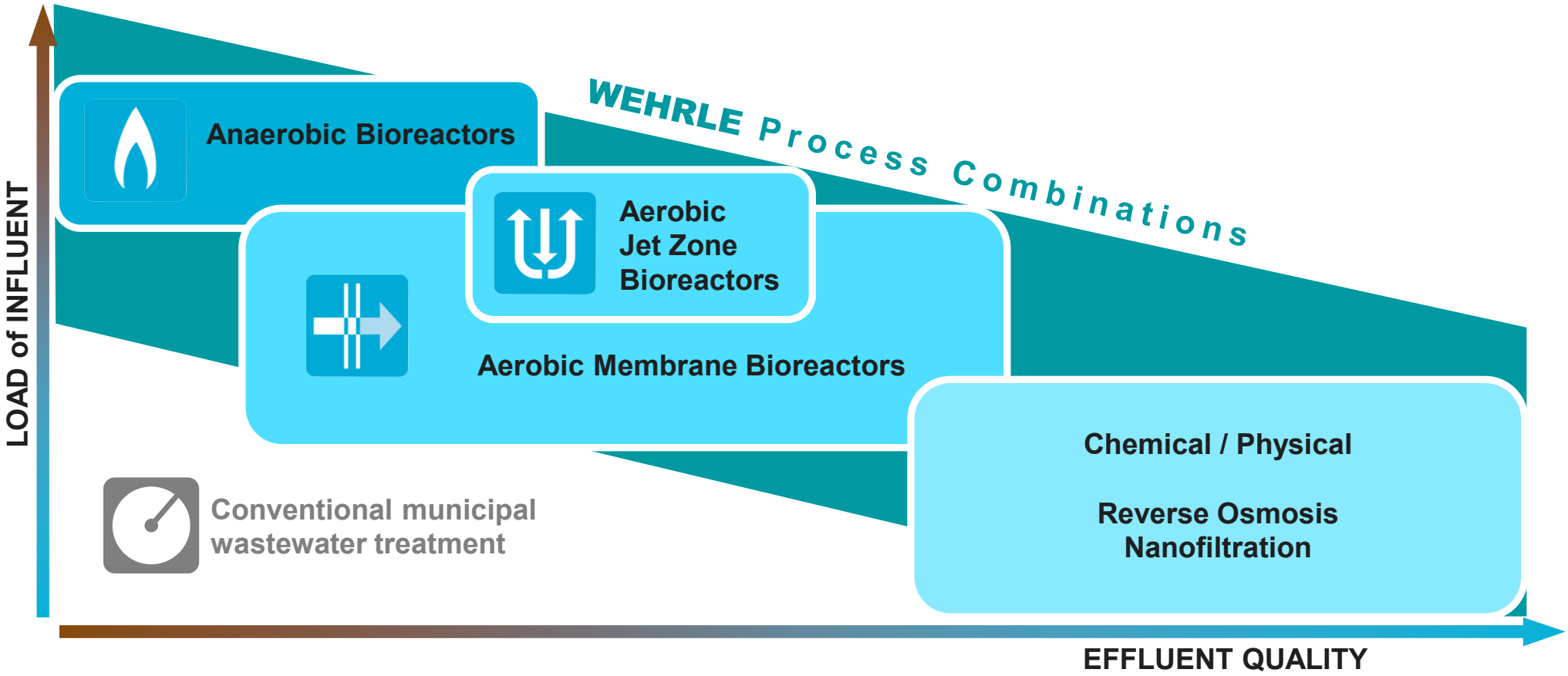


WEHRLE & Treatment of heavy polluted waste water



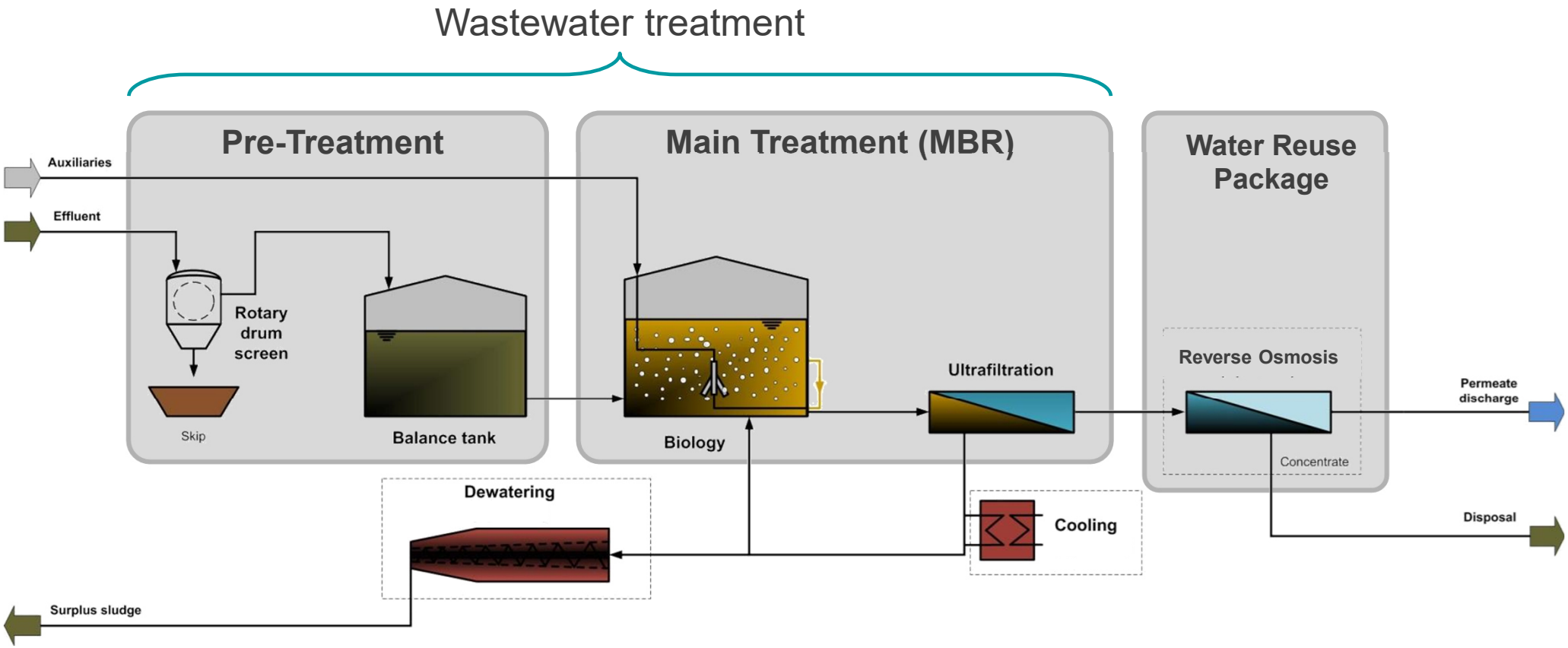
- 1st plant built in 1990 & still in operation!
- Total References : 439 project references
- Daily Flowrate : 8 – 5,200 m^3/d
- COD Range : 1,000 – 80,000 mg/L
- NH_4-N Range : 0 – 6,000 mg/L
- TDS Range : 100 – 50,000 mg/L

Technology Portfolio for Wastewater Treatment

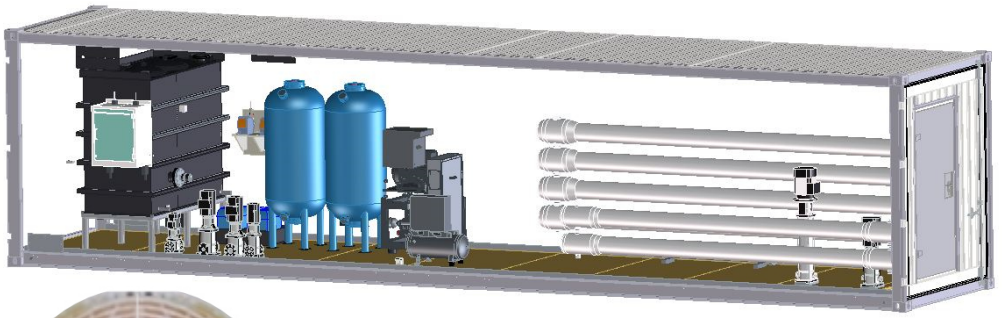


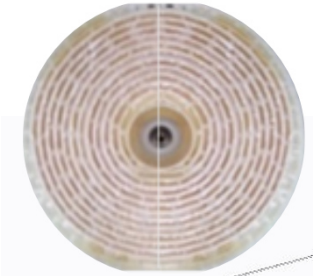
EFFLUENT TREATMENT BY WEHRLE

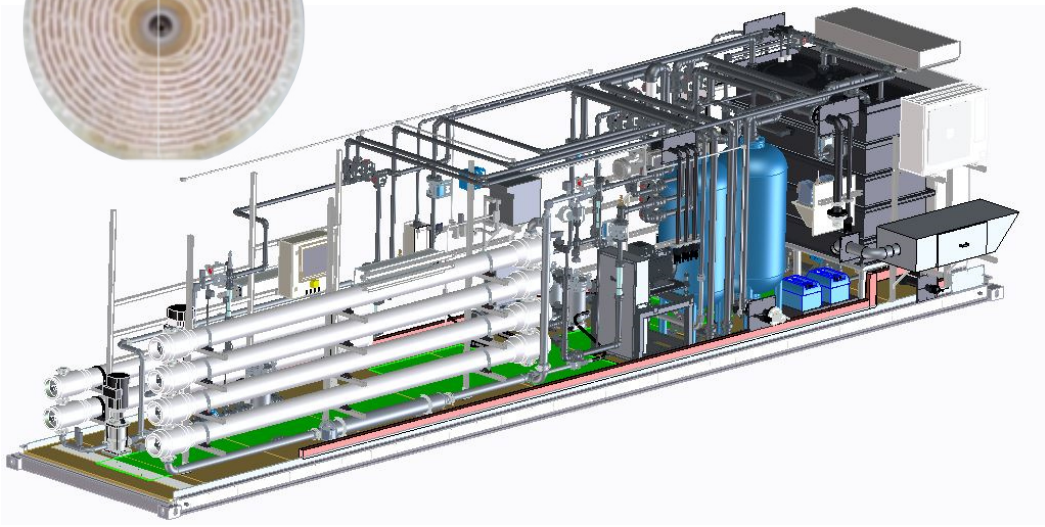
Exemplary design for leachate and industrial applications



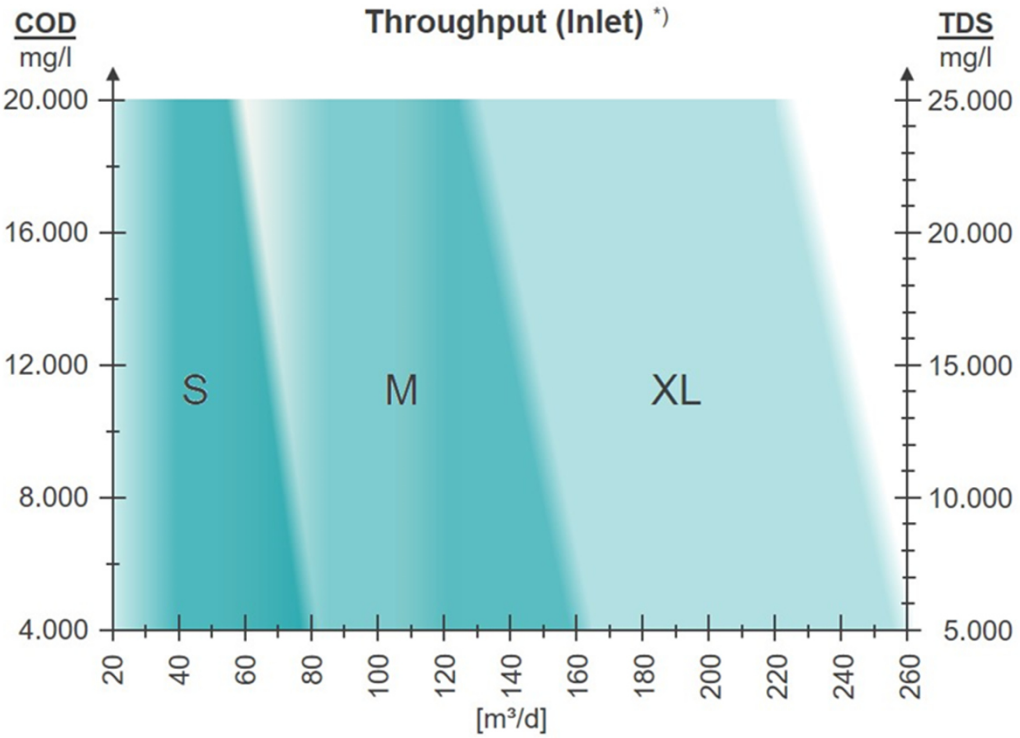
CONTAINERIZED DIRECT-RO SYSTEM

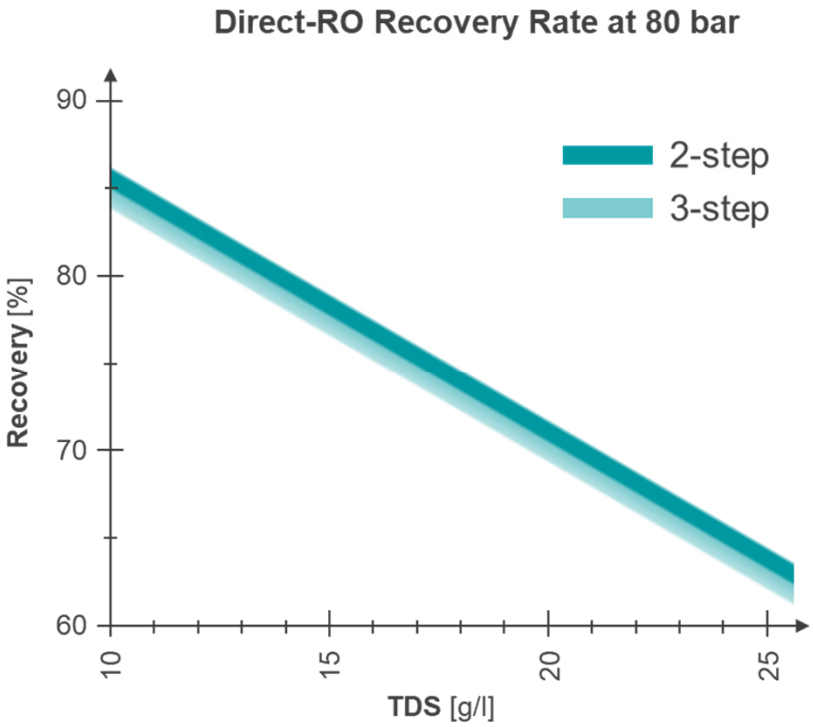






Available Plant Sizes





*) the higher level (COD or TDS) determines the working point

S & M: 1 container 40‘ / XL: 2 containers 40‘

EMISSION REDUCTION IN CITIES PROGRAM 1 (ERIC 1)

WEHRLE

Jombang

Sidoarjo

Jambi

Malang

CASE STUDY EMISSION REDUCTION IN CITIES (ERIC)

Application	Leachate Treatment
Effluent Type	Leachate from waste landfill
Flow Rate	275 - 375 m³/d
Process/System	BIOMEMBRAT® Membrane Bioreactor
Design	WEHRLE
Construction	WEHRLE
Operation	3rd party
Commissioning	2020

Jambi, Malang, Sidoarjo, Jombang / Indonesia

Anaerobic Pond

- Occupies **40%** of the land availability
- Performance rate **20%!**

WEHRLE BIOMEMBRAT®

- Occupies **10%** of the land availability
- Performance rate **70%!**

Constructed Wetland

- Occupies **50%** of the land availability
- Performance rate **10%!**

Component	Inlet	Outlet	Performance
COD	20,000 mg/l	< 1,000 mg/l	> 95 %
NH_4-N	2,000 mg/l	< 5 mg/l	> 99.7 %
TN	2,000 mg/l	< 60 mg/l	> 97 %

Comment

Compact and space-saving MBR plant for effective reduction of COD and NH_4-N for direct discharge into a river. Even though the WEHRLE part is using the smallest area, it has the highest treatment efficiency of all 3 process steps.

EMISSION REDUCTION IN CITIES PROGRAM 1 (ERIC 1)

Performance and Advantageous

Anaerobic Pond

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CASE STUDY DJEBEL CHEKIR, TUNISIA

Application	Leachate Treatment
Effluent Type	Leachate from municipal waste landfill
Flow Rate	440 m³/d
Process/System	BIOMEMBRAT® Membrane Bioreactor Dissolved Air Flotation Reverse Osmosis
Design	WEHRLE
Construction	WEHRLE
Operation	Client
Commissioning	2012

Groupement Pizzorno AMSE

Djebel Chékir / Tunisia

Component	Inlet	Outlet	Performance
COD	29,000 mg/l	< 30 mg/l	> 99 %
NH_4-N	4,000 mg/l	< 2 mg/l	> 99 %
Cl^-	6,000 mg/l	< 300 mg/l	> 95 %

Comment

Plant operating at leachate concentrations of
Cl^-: 13,500 mg/l (max. 18,600 mg/l)
TDS: 33,000 mg/l
The concentrate is narrowed by evaporation.
Direct discharge into river!

PROJECT INFORMATION DJEBEL CHEKIR, TUNISIA

Leachate Treatment Plant is under Construction

© **2013** DigitalGlobe / Bing Maps

Leachate treatment plant is in operation

© **2017** DigitalGlobe / Google Maps

CASE STUDY

Application	Household & Personal Care (HPC)
Effluent Type	HPC production
Flow Rate	100 … 200 m³/d

Unilever Rus

St. Petersburg / Russia

Process/System	Equalisation BIOMEMBRAT® Membrane Bioreactor
Design	WEHRLE Umwelt
Construction	Client
Operation	Client
Commissioning	2013

Component	Inlet	Outlet	Performance
COD	18,600 mg/l	< 1,400 mg/l	> 92 %
Detergents	6,500 mg/l	140 mg/l	> 97 %

Comment

Super-compact indoor plant that reliably treats effluent with a high foaming tendency.

INDUSTRIAL REFERENCES

- Animal food & rendering plants
- Brewery & beverages
- Chemical industry
- Steel & iron
- Household & personal care product
- Dairy industry
- Laundry
- Liquid manure
- Pulp & paper
- Petrochemical
- Pharmaceutical industry
- Tannery
- Textile
- …

WEHRLE

INDOWATER 2022 EXPO & FORUM

October 5 - 7, 2022

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Widyananda Suwito
(Project Manager)

WEHRLE-WERK AG
Tel. : +49 7641 585 358
Email: suwito@wehrle-werk.de

Bismarckstr. 1-11
79312 Emmendingen
Deutschland

www.wehrle-werk.de/en

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