

# Exxro S.r.l.

Italy's leading company in landfill leachate treatment based on flat-sheet membrane technology





# Exxro S.r.l.

Founded in Genoa in 1996



**We develop advanced, reliable solutions for a better future**

## Our Mission - Blue Economy

- We promote innovative, high-performance technologies with a reduced environmental footprint
- We support companies in achieving ESG objectives and regulatory compliance
- We facilitate strategic investments that reduce operational costs and resource consumption





# Exxro - Core Activities



**Design, production and management** of industrial water treatment plants.



**Large-scale environmental remediation service.**



**Management and transport** of waste generated by industrial processes.



# Compliance & Accreditation

EXXRO is certified according to ISO 9001 and ISO 14001 standards and holds SOA OG12 and SOA OS22 qualifications. All our plants ensure:

- Full compliance with Legislative Decree 152/2006
- Adherence to the main environmental regulations



# Application Fields - Water Treatment



Landfill leachate  
treatment



Complex industrial  
wastewater treatment



Sulfate removal



Desalination



# Critical Challenges in Wastewater Treatment

Our solutions are designed to effectively treat wastewater with high chemical complexity, including:

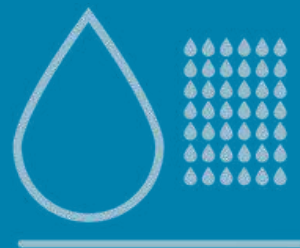
- PFAS
- Chlorides
- Ammonia
- Sulfates
- Surfactants
- Boron



# Flat-Sheet Membrane Technology

Our membranes are manufactured with flatsheet FilmTec™ DOW and assembled in our workshop in Italy and Slovenia. Available types:

## REVERSE OSMOSIS



**ROEX220**

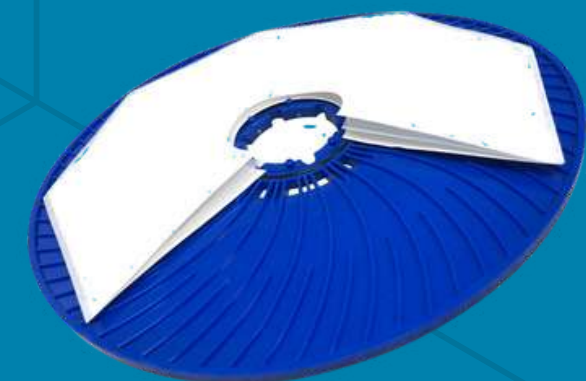
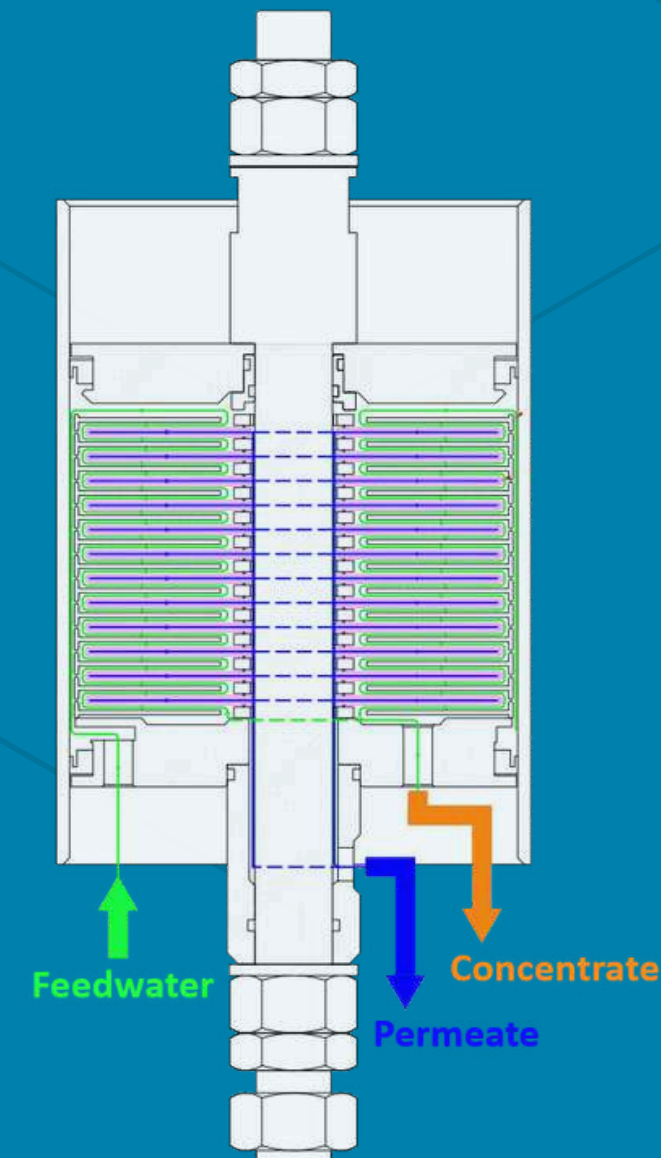
- **BW (Brackish Water):** high permeate productivity at low operating pressure, with delayed fouling.
- **SW (Sea Water):** combination of high productivity and high rejection, ideal for high-TDS waters.

## NANOFILTRATION



**NFEX220**

- **NF 270:** high productivity for high-flow treatments requiring high sulfate or divalent reduction in general.
- **NF 90:** high salt rejection, ideal for producing low-salinity water and effectively removing sulfates.





# Who believed in us

Site	m <sup>3</sup> of water treated for day
Malsapello MSW landfill - Rezzoaglio (GE)	24
Ca' Lucio MSW landfill – Urbania (PU)	180
Casei Magliolo MSW landfill (SV)	35
Landfill for non-hazardous special waste in Grottaglie (TA)	100
Colleferro MSW landfill (RO)	360
Basso Sinni - Colobrarò MSW landfill (MT)	30
Arma di Taggia MSW landfill (IM)	100
Borgo Montello MSW landfill (LT)	50
Grumolo Delle Abbadesse MSW landfill (VI)	50
Viterbo MSW landfill (VT)	120
Landfill for non-hazardous special waste in Italcave Lot I-II (TA)	120
Landfill for non-hazardous special waste in Italcave Lot III (TA)	120
Wastewater treatment plant – Brescia (BS)	120
Novellara MSW landfill (RE)	40
Celje MSW landfill (Slovenia)	150
Landfill for non-hazardous special waste in Cero Gajke (Ptuj – Slovenia)	60
Alghero Saline Water Treatment Plant (SS)	38,4
Cairo Montenotte landfill (SV)	240
Special waste landfill in Serra Scirieddus (SU)	50
Casalpusterlengo MSW landfill (LO)	35
Parco Saurino MSW landfill (CE)	120
Rosignano Marittimo MSW landfill (LI)	150
Landfill for non-hazardous special waste in Cà Asprete (PU)	90
Biofilter water treatment plant in Lonato del Garda (BS)	20
Wastewater treatment plant Polymer industry in Qualiano (NA)	62,4
Wastewater treatment plant / landfill leachate in Valli S.p.A. in Lonato del Garda (BS)	20
Maiolati Spontini MSW landfill (AN)	150



# Who believed in us



Landfill for non-hazardous special waste in Italcave Lot I-II – Taranto (TA)



Grumolo Delle Abbadesse MSW landfill (VI)



Arma di Taggia MSW landfill (IM)



Novellara MSW landfill (RE)



Cairo Montenotte landfill (SV)



Landfill for non-hazardous special waste in Italcave Lot I-II (TA)



Landfill for non-hazardous special waste in Cà Asprete (PU)



Cairo Montenotte landfill (SV)



Casalpusterlengo MSW landfill (LO)



Borgo Montello MSW landfill(LT)



Colleferro MSW landfill (RO)

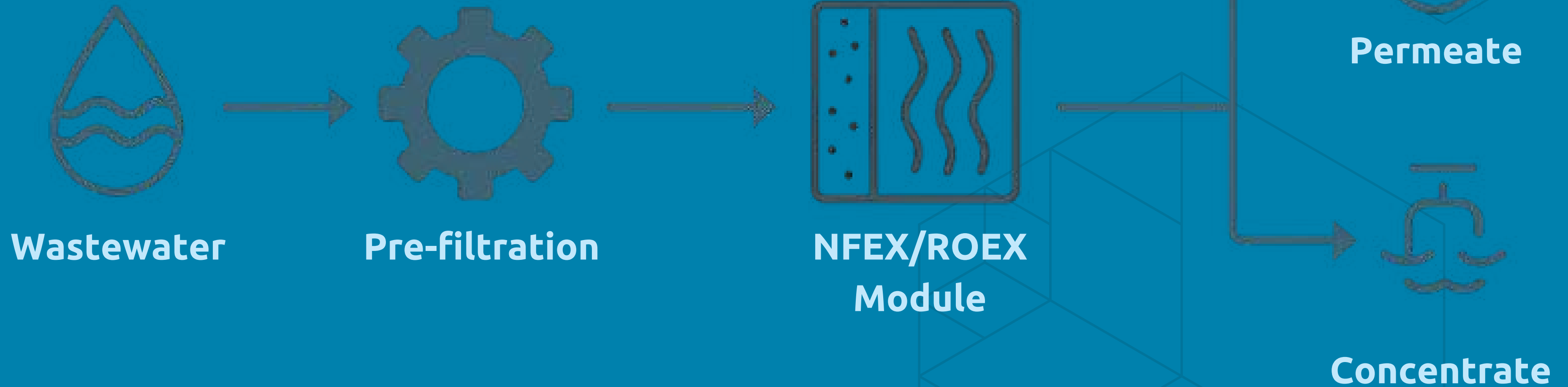


Landfill for non-hazardous special waste in Cà Asprete (PU)



Novellara MSW landfill (RE)

# Process Flow





# Performance Comparison

## Spiral-Wound Modules

- ✗ Low fouling resistance
- ✗ Accumulation zones and loss of efficiency
- ✗ Low initial investment but high operating costs
- ✗ Higher wear → frequent replacements
- ✗ Limited performance on highly contaminated wastewater



VS

## Flat-Sheet Membrane Modules

- ✓ High fouling resistance
- ✓ Simple maintenance, complete cleaning
- ✓ Higher upfront investment but low operating costs
- ✓ Long operational life
- ✓ Excellent performance on complex wastewater



# Treatable Parameters Comparison of landfill leachates

Parameter	Maximum treatable value with ROEX220 module	Maximum negotiable value with coiled spiral
Conductivity	40.000 µS	20.000 µS
COD	20.000 mg/L	8.000 mg/L
BOD	10.000 mg/L	7.000 mg/L
Ammoniacal Nitrogen	5.800 mg/L	1.500 mg/L
Suspended Solid	400 mg/L	50-80 mg/L



# Advantages of EXXRO Module

- **High efficiency:** up to 99% pollutant removal and total removal of PFAS
- **Energy savings:** lower operating pressures
- **Minimal maintenance:** robust, easily regenerable membranes
- **Modular structure:** fast intervention in case of failure
- **Sustainability:** Reduced waste production and disposal costs

**Significant reduction in operating costs**

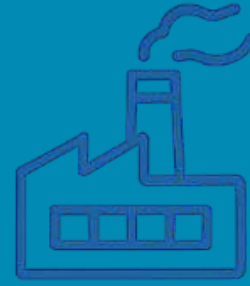


# Applications

Landfills (MSW)



Manufacturing



Cosmetics



Chemical industry



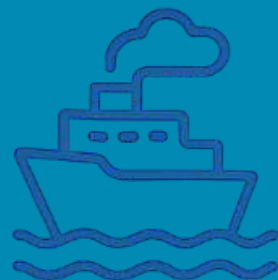
Food industry



Pharmaceutical



Marine sector



Textile



Residential



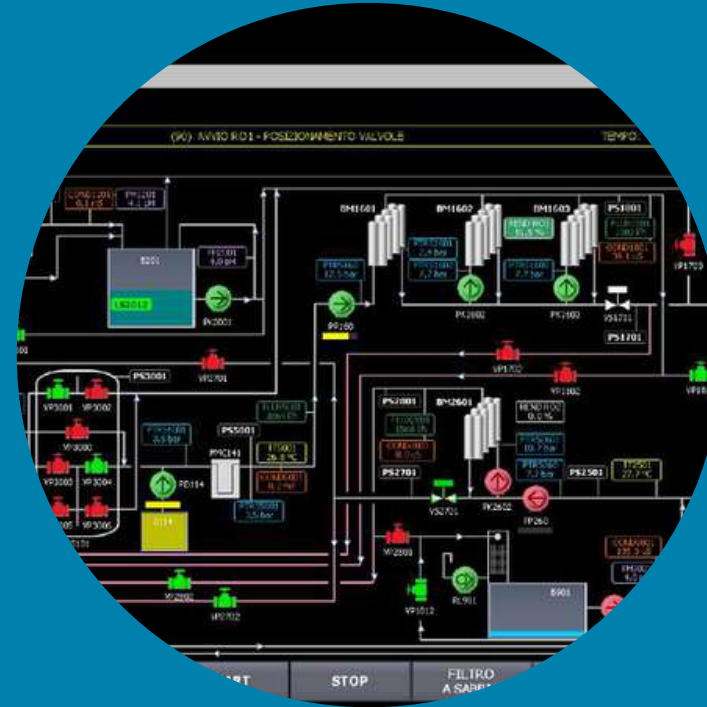


# EXXRO Services



## Modular and Flexible Units

- Reefer-type insulated containers
- Skids in AISI 316L stainless steel



## Control Software

Siemens PLC and software for automation and monitoring



## Pilot Plant

Preliminary tests with pilot plant and specialized technician

# EXXRO Technical Support



- Dedicated technical assistance
- Emergency service
- Scheduled maintenance
- On-site intervention in Italy and abroad
- In-house spare parts warehouse
- Specific chemical detergents

**Guaranteed SLA (Service Level Agreement) and response times**



# Official Articles and Publications



## Case Study — S.A.BA.R. (Reggio Emilia)

The plant treats 15,000 m<sup>3</sup>/year of leachate and produces 10,000 m<sup>3</sup>/year of clean water (68% recovery), reducing the need for external transport.

## Maiolati Spontini, nuovo impianto di depurazione percolato Sogenus. «Passo avanti per ambiente e territorio»

Con il nuovo impianto la discarica diventa autonoma e sostenibile, riduce i costi di trasporto e fornisce acqua depurata per usi interni e ambientali. Un investimento strategico per la salute pubblica e l'ambiente

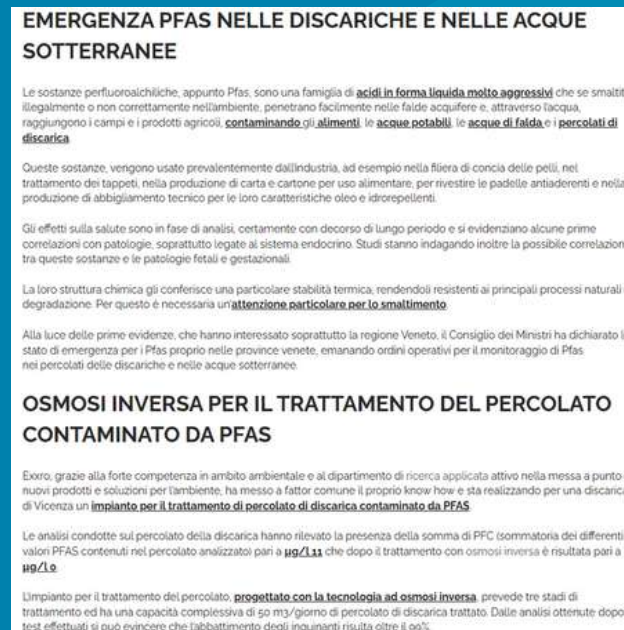
Di Mauro Lumineri - 12 Luglio 2025



## Maiolati Spantini Plant – Sogenus.

50.000 m<sup>3</sup>/year treated, 35.000 m<sup>3</sup>/year recovered (70%). Operating cost reduced by 50–60%, eliminating over 1100 tanker trucks annually.

# Official Articles and Publications



**Case Study — PFAS (Vicenza)**  
Reverse osmosis plant treating  
PFAS-contaminated leachate with  
50 m<sup>3</sup>/day capacity **and 100%  
PFAS removal.**



**RaiNews – TV Segment:**  
Feature on EXXRO's compact, high-performance membrane systems for purification and desalination, including an **interview with Ezio Saturno (EXXRO).**

And a lot more...



# Achieved Results



**869.484**

m<sup>3</sup>/year of  
water treated

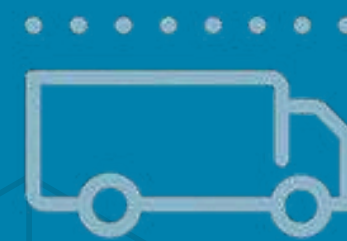


**608.638**

m<sup>3</sup>/year of  
water recovered



**Water  
recovered**



**20.287**

Water tankers  
eliminated per year



**1.217.277**

kg of CO<sub>2</sub>  
emissions avoided



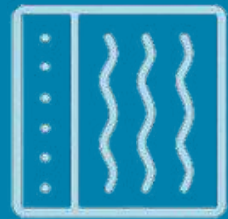
# R&D with Leading Partners



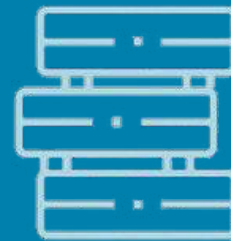
Active collaborations to develop high-efficiency solutions for complex wastewater treatment.



# Why Choose EXXRO



Superior performance  
(flat-sheet membrane)



Modular plants



Cost reduction



Certified reliability



SLA-based  
technical support



Over 30 active sites

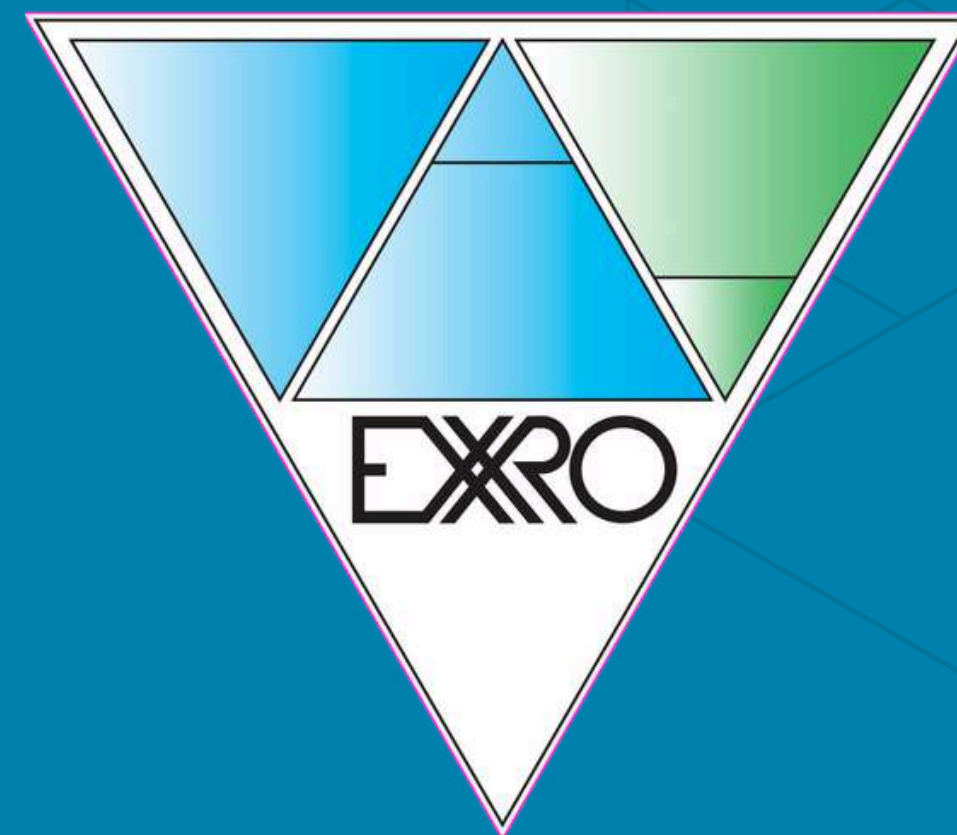


# Contact Us

- Request a preliminary water analysis
- Request a customized quote
- Book an on-site pilot test



Over 30 installed plant across Italy and Slovenia



## Operational Headquarters

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**SPECIALIZED  
IN LEACHATE  
AND WASTEWATER  
TREATMENT PLANTS**



We give new life to water

# THANK YOU