

Welcome to the Global Water Technology Center Tarragona



Overview

Facility
inaugurated
in
**June
2011**

Real
Industrial Scale
assets processing
10,000
m³/day

Access
to **3**
different
water
sources

40
testing units

150
separation
component test
positions

To support **7** Market Segments



Oil & Gas



Industrial Water
& Energy



Commercial



Nutrition
& Dairy



Municipal
& Desalination



Bioprocessing
& Healthcare



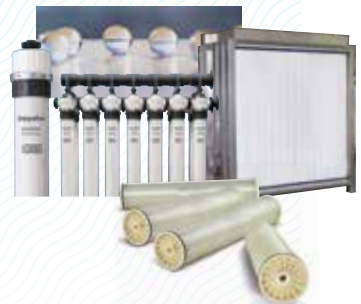
Wastewater/
Industrial
Wastewater

Technologies incorporated

- Ultrafiltration (UF)
- Nanofiltration (NF)
- Reverse Osmosis (RO)
- Ion Exchange (IX)
- Biodigestion (MABR)
- Biofouling Prevention (B-Free)
- Closed Circuit Reverse Osmosis (CCRO)

In addition

- Element Evaluation Laboratory
- Best in class Analytical Laboratory (> 50 techniques)



**DuPont Water Solutions taking part of the
Sustainability Development Goals (SDG)**



**SUSTAINABLE
DEVELOPMENT GOALS**

Milestones & Key Achievements

Accelerate product launches

- More than 20 new products since 2011
- Cost of water reduced by 15–25% in RO
- 25% less energy required in UF

Manufacturing collaboration

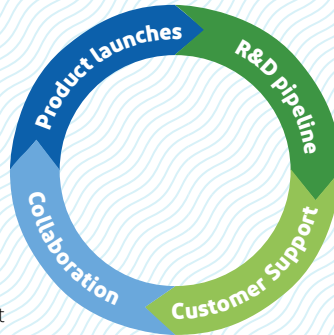
- Time to launch a product 10 times faster

Enhance R&D pipeline

- Innovative solutions for existing and new applications
- More than 30 external cooperations
- More than 8 MM USD in public funding

Customer Support

- 150 customer projects per year
- Improve customer process
- More than 3,000 visits



Unique research center with global customer collaboration to validate solutions and technologies to address global water challenges

Knowledge



Development



Local Expertise/
Global Markets



Relationships

Capabilities

Large Ultrafiltration Unit (UF)



Large Reverse Osmosis Unit (NF/RO)



Large Industrial Asset (UF + NF/RO + IX)



Single elements testing pilot plants (NF/RO)



Flat sheet pilot plants (RO + B-Free)



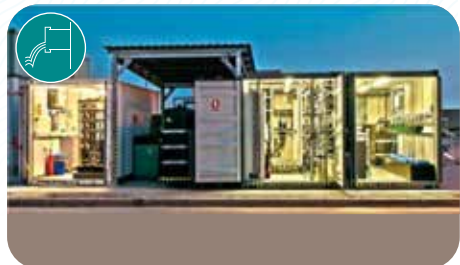
Cross Flow (RO)



Containerized pilot plant for Oilfield application (UF + NF/RO)



Containerized pilot plant for waste water application (UF + RO)



Membrane Aerated Biofilm Reactor unit (MABR)



Membrane Aerated Biofilm Reactor unit (MABR) Gen - 5



Containerized pilot plant for biofouling prevention (B-Free)



Containerized pilot plant for brackish water applications (UF + NF/RO)



Mobile De-oiling unit (IX)



Containerized pilot plant for brackish water applications (UF)



Containerized Multitech Research Unit (UF + RO + IX)



Closed Circuit Reverse Osmosis plant (CCRO-8)



Closed Circuit Reverse Osmosis plant (CCRO-2.5)



Available sources of feed water

Brackish water

100 m³/h supply
Ebro river with treatment



Seawater

80 m³/h supply
intake close to end
of a river and harbor



Municipal & Industrial Wastewater

50 m³/h supply
Camp de Tarragona WWTP primary and
secondary conventional treatment
Industrial water from petrochemical industries



Element Evaluation Laboratory

- State-of-the art service offering with global coverage
- Global alignment between Water Solutions Testing facilities
- Expert analysis, testing and servicing of liquid separations technologies.
Support to treatment installations in order to keep the plant operating at peak performance.
- Problems solving by performing root-cause investigation



Analytical Laboratory



Liquid samples analysis

- Determination of ionic content
 - necessary for design simulations and selection of best technology
 - support to root cause investigation of failures
 - evaluation of specific ion rejection
 - prediction of scaling
- Determination of organics and micropollutants for water reuse applications
- Determination of physical parameters (suspended solids, turbidity, SDI, TTF...)
- Determination of microbiological indicators
- Determination of oil and grease



Solid samples analysis

- Evaluation of chemical composition of materials
- Identification of potential chemical degradation and halogenation
- Microscopic exploration
- Fundamental characterization of resins



Foulant & Scaling analysis

- Surface analysis for different types of fouling (biological, organic and scaling)
- Sample extraction to perform quantitative analysis (metals, organics, etc.) Fundamental on identifying optimal maintenance cleaning recipe
- Supports optimum pretreatment selection in order to improve whole treatment process efficiency



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