Welcome to the Global Water Technology Center

Tarragona

Overview

Facility inaugurated in **June 2011**

Real Industrial Scale assets processing **10,000** m^3/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

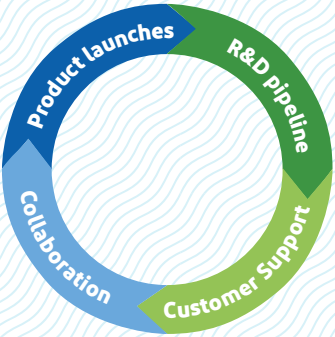
Milestones & Key Achievements

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

Enhance R&D pipeline

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



Manufacturing collaboration

- Time to launch a product 10 times faster

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

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)

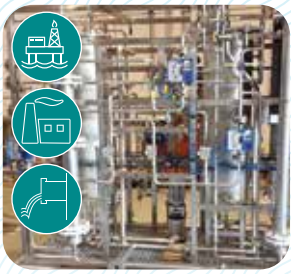
Membrane Aerated Biofilm Reactor unit (MABR)

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 m^3/h supply
Ebro river with treatment

Seawater

80 m^3/h supply
intake close to end
of a river and harbor

Municipal & Industrial Wastewater

50 m^3/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

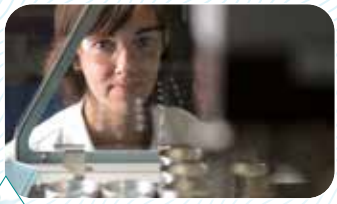
Analytical Laboratory

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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