Water Solutions

Pre-Treatment to Mitigate RO Fouling

High Recovery & Extended Membrane Life

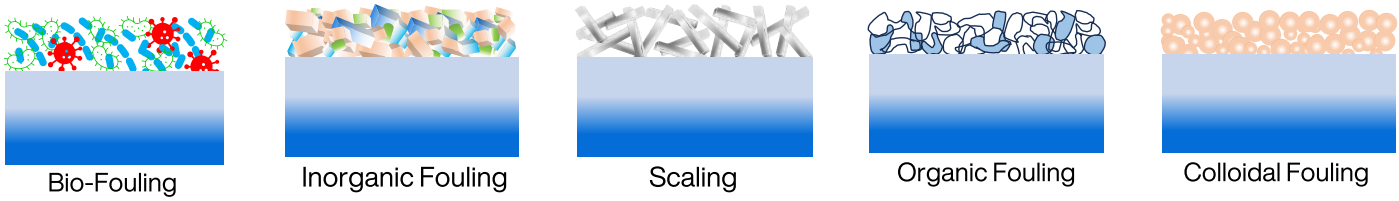
Challenges with RO

Do you happen to be experiencing any of the following issues? If so, it's imperative to recognize their magnitude as they can pose significant problems.

- RO membrane bio-fouling and membrane tear
- Frequent membrane replacements
- Reduced recovery and a high MEE load / ATFD Load
- Increased membrane operating pressure
- Needs frequent chemical cleaning / CIP
- Compounding silica & hardness in downstream stages
- Increased Cost of RO Operations

What Causes Fouling of RO Membrane

Here's an illuminating insight into the primary contributing factors which cause fouling of the RO membranes.



- Presence of organics / Sticky polymeric precipitates in feed water stream
- Other inorganic precipitates
- Residual COD & other micro-pollutants being fed to RO
- Excessive chemicals‘ dosage increases the ORP and frequent CIP reduces the life of the membranes
- Excess flocculating polymers from prior treatment
- Cationic polymers when mixed with anionic anti-scale chemicals
- TSS / Suspended particles not pre-filtered
- Presence of silt, clay, silica / sand as suspended particles
- High mineral content- Calcium and magnesium carbonates, bicarbonates and sulfates causing increased hardness in the feed water
- Fats, Oil & Grease traces
- Iron and rust with other metallic impurities
- Odour and Colour in the feed effluent
- Presence of live micro-organisms- Bacteria, pathogens, viruses etc.

Current Fouling Control Methods

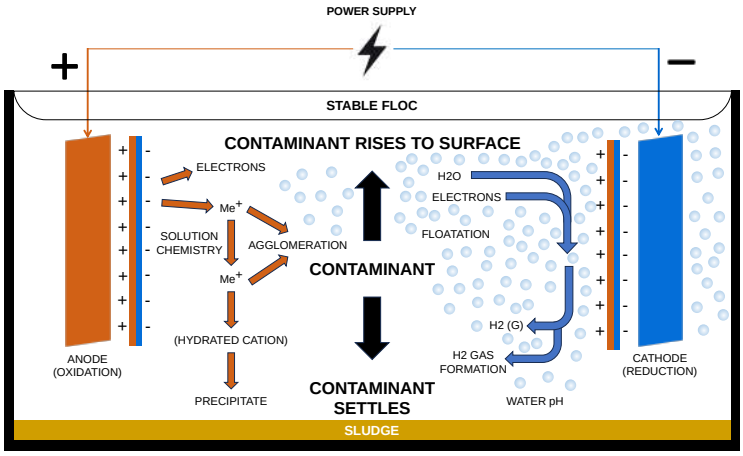
The present industry approaches to address and mitigate fouling in RO (reverse osmosis) membranes are worth examining.

- Media Filtration (MGF, DMF, PSF / ACF)
- Cartridge Filtration (MCF)
- Micro Filtration (MF), Nanofiltration (NF) and Ultrafiltration (UF)

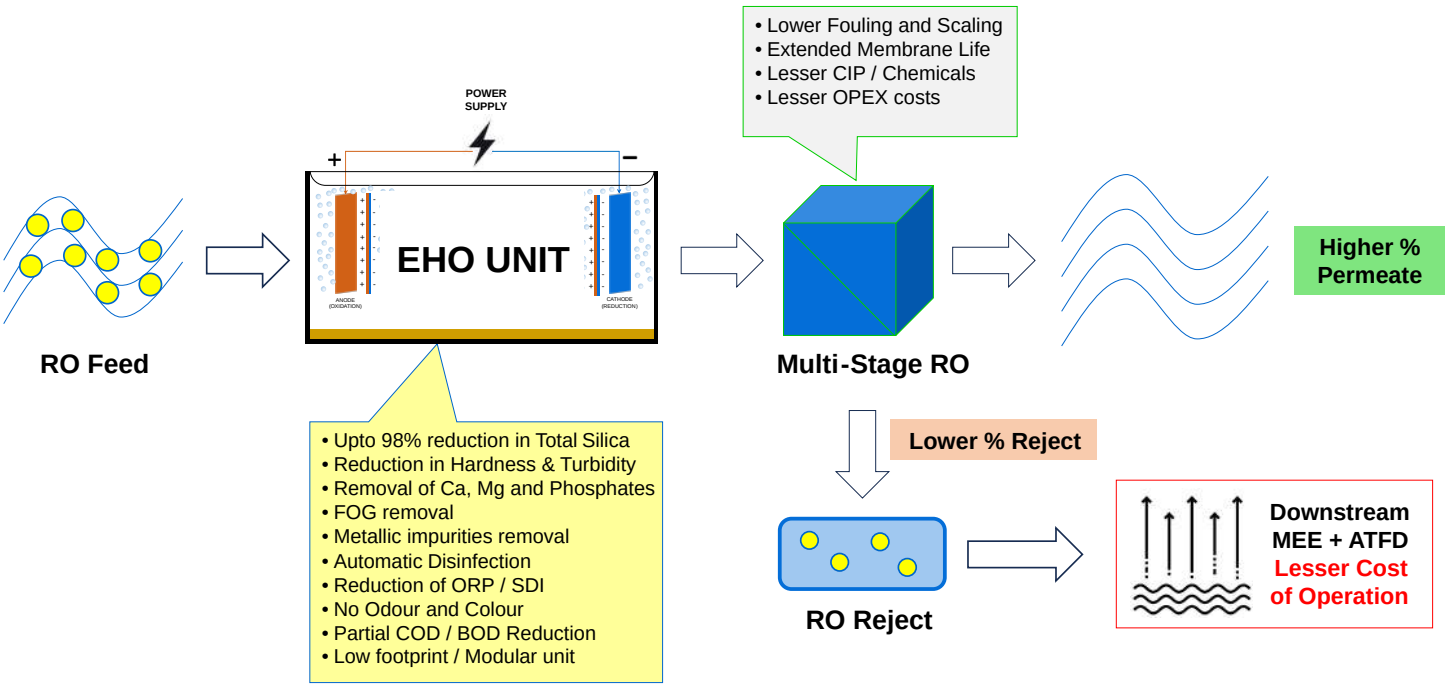
These methods come with certain limitations as these cannot completely remove micro-organisms, is less effective with dissolved organics and need frequent maintenance.

The Solution

Futura EHO process- By means of oxidation using electricity, we turn the stable colloids into unstable colloidal particles, partially or completely neutralizing the charge around the particle surface allowing them to come together (Van der Waals forces) and agglomerate into larger particles.



This oxidation process causes precipitation reactions and releases the hydroxyl ions which attach to the surface of the particles causing them to agglomerate into larger particles and precipitate. Now these larger particles can settle as well as can be filtered before feeding to the RO.



Typical installation schematic of the Futura EHO unit; The unit can also be installed in between RO stages for higher permeate recovery

Water Solutions

Futura EHO Process- Increase RO Recovery

The EHO process is a water treatment technique designed to mitigate scaling & biofouling in reverse osmosis (RO) membranes. Its mechanism of action involves reducing the levels of organic and inorganic contaminants present in the feedwater. This innovative approach is incredibly cost-effective and has proven to be an efficient control technique for RO fouling. The benefits of utilizing the EHO process are evident as it results in considerable savings in the operating costs of downstream MEE and ATFD, making it an excellent return on investment.

Ultra-Compact / Modular Unit

Our EHO unit modules have an ultra-low footprint requirement, ranging from 12 sq.m for 50 KLD installations to 24 sq.m for 600 KLD installations.

In summary, Futura EHO process can be a valuable pre-treatment method for RO systems to reduce scaling & biofouling by oxidizing & removing contaminants and microorganisms, improving water quality, and decreasing the reliance on chemical treatments. Its application should be carefully evaluated and optimized for each specific water treatment scenario to achieve the desired results.

About Us

Futura as the name implicates- technologies and advancements of the future. We are ex-industry stalwarts with the purpose and vision of bringing specialized knowledge, value added products, services and solutions to you which will help your businesses grow and be profitable & sustainable.

Many of our process technologies are a result of Innovation, Process Development, Research and Strategic Technology Tie-ups with International Companies with R&D facilities having core expertise in the subject field. We have associations with many industry leading solutions and service providers to provide and end-to-end and seamless delivery for your needs.

Why Us

Having already supported over 120+ customers long term, we specialize in what we do. All our core capabilities, products and solutions are backed by our own knowledge and are developed inhouse and hence we are not dependent on any vendor or service provider to commit and deliver.

Futura

info@futuraDX.com
www.futuraDX.com

Futura Digital Technologies Pvt Ltd
315, Samanvay Silver, Nr. Mujmahuda Circle,
Vadodara, Gujarat (India) - 390020
Landline +91-265-400 0037

Futura Technologies USA LLC
8100, Reading Road,
Cincinnati, Ohio, USA- 45237
Contact +1 (616)-238-9499