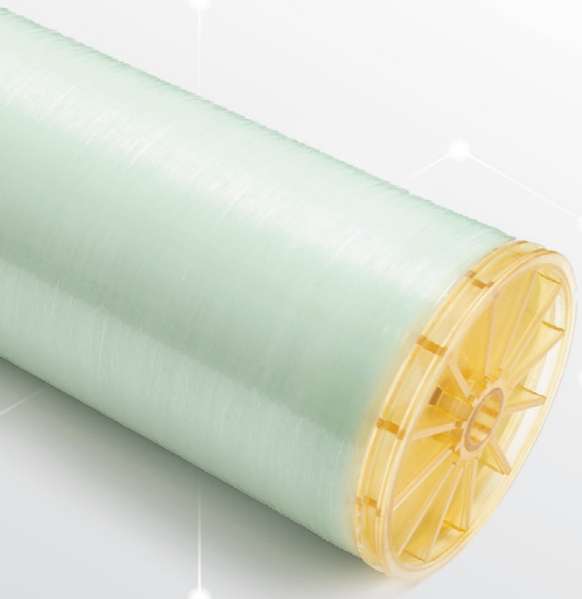
Esmil Process Systems Ltd
Unit 5, the Courtyard, Glory Park,
High Wycombe, UK, HP10 0DG

+44 1494 526 155
info@esmil.co.uk
www.esmil.co.uk

SPECIAL FOULING-IMMUNE ZWITTERIONIC MEMBRANES

At Esmil, we utilise a range of membranes to provide the perfect solutions to the water and wastewater treatment requirements. One of such solution is utilising zwitterionic membranes.



ZWITTERIONIC REVERSE OSMOSIS

Microorganisms and organic materials can't stick to and grow on the zwitterionic materials. Thus membrane elements can provide stable performance even for high-fouling streams containing organics and can be flushed only with hot water. Deep cleaning can be done 10 times less frequently and using inexpensive standard cleaners, which means lower chemical consumption and longer membrane life.

Zwitterionic RO membranes are of the standard size and no new equipment is required to implement this technology to existing membrane systems.

MAIN ADVANTAGES AND CHARACTERISTICS:

- Operates by up to 40 bars making them an ideal replacement for the brackish water application.
- Available in industry-standard sizes 8040, 4040, 2540.
- Applicable for effluents with high concentrations of organic substances such as MBR plants, Fovod plants, MDF plants, Landfill Leachate treatment etc.
- Stable rejection performance and high permeate quality.
- Stable operation with minimal downtime.
- Lower operating costs and cleaning frequency by up to 90%.
- Use of less aggressive, widely spread and inexpensive cleaners.
- Higher sustainability due to longer lifespan and less chemical consumption and waste generation.

Esmil Process Systems Ltd
Unit 5, the Courtyard, Glory Park,
High Wycombe, UK, HP10 0DG

+44 1494 526 155
info@esmil.co.uk
www.esmil.co.uk

ZWITTERIONIC SUPERFILTRATION

As zwitterion surface has both positively and negatively charged groups, it can repel any polar contaminant molecules. This unique property prevents organic components such as proteins, fats and oils from adhering to the membrane and clogging their pores.

As a result, Esmil membrane skids are capable of treating even the most complicated and highly contaminated effluents with ease. Unlike traditional membranes, which may struggle with tough industrial wastewater, our system excel in challenging environments, brining membrane separation a new applications for different effluents treatment processes.

Enter the realm of Superfiltration (SF) membranes, bridging the gap between ultrafiltration and nanofiltration. With their high organic rejection and low salt rejection rates, SF membranes offer a versatile solution for selective removal of dissolved components.

From capturing proteins to passing inorganic molecules, SF membranes open up a world of possibilities for improving sustainability and product recovery options.

MAIN ADVANTAGES AND CHARACTERISTICS:

- Standard dimension spiral-wound elements.
- Natural resistance to fouling.
- Can be cleaned without harsh chemicals.
- Lower operating costs and cleaning frequency.
- Fewer replacements and minimal downtime.
- Applicable for effluents with high concentrations of organic substances such as fats, grease, oils, and proteins from industries like Biofuels and Anaerobic digestion, Food processing, Farms and Slaughterhouses, Landfills.
- Fast cleaning and fully recovered flux upon cleaning even after severe fouling events.
- Can handle high concentrations of chlorine, peracetic acid, and aqueous ammonia, as well as a wide range of pH, which gives more flexibility to cleaning.
- Higher sustainability due to longer lifespan and less chemical consumption and waste generation.