

Advanced Membranes for Water Desalination, Treatment and Industrial Processes

Membranes are an important technological component in the development of sustainable technologies. Membrane processes are inherently less energy consuming, more highly efficient in the required separation process and are significantly less polluting unit operations than competitive processes such as evaporation, crystallization, chromatography or ion exchange. With present membrane technology's there is nevertheless a great need in current and new applications for improved cost effectiveness and non-polluting.

Towards this goal of improved cost effectiveness and sustainable technologies we have developed highly stable nanofiltration and reverse osmosis membranes to meet the ever growing needs for improved water desalination/purification and industrial process and waste stream treatment.

The Technology

The proposed technology solves the problem of achieving the currently unmet combination of membrane stability (robustness) with good separation and product flow (flux) needed to improve cost effectiveness by lowering energy consumption, operational costs and capital investment. The membranes are a novel combination of materials and crosslinking technology to form nano thin films on a porous support. Unlike the state of art our membranes are highly stable to a combination of aggressive chemicals such as oxidants, acids, bases and solvents, while still offering high flux and excellent separation characteristics which are readily optimized for a given application.

Applications

- Treatment of waste streams from municipal sources for non-limited use in agriculture or domestic and industry consumption.
- Sea and brackish water desalination
- Treatment of industrial processes and waste streams

Advantages

- Membranes have very good separation characteristics and flux with improved life time and chemical stability over current products.
- The use of oxidants and acid/ base cleaners minimizes fouling and allows for high continual productivity.
- The chemistry and fabrication techniques allow for a range of different NF and RO membrane separation characteristics.

Patent Status

Patent pending

Research Team

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