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INTERNET ARTICLE

New membranes deliver clean water more efficiently

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Researchers have developed new membranes or micro-filters that will clean water in a much more energy efficient manner – an innovation that could come in handy for the South African water landscape.

The new membranes will supply clean water for use in desalination and water purification applications.

The project of the Melbourne School of Engineering at the University of Melbourne, in conjunction with CSIRO was published recently in the journal Advanced Materials.

South African water sector stakeholders have hailed the move and agreed that the process was the “right tonic at the right time.”

Sandra Kentish, Professor in the Department of Chemical and Biomolecular Engineering said that up until now, there has not been a way to add chlorinating agents to water to prevent biological growth in the desalination process. “Such biofouling has been a major issue to date, but the new membranes have the potential to lead to a more economic desalination operation,” she said.

For Professor Kentish, the availability of fresh water for drinking, irrigation and industrial use is one of the grand challenges of this century. Energy efficient water purification has the potential to improve the lives of billions of people around the world. “The new membranes perform at a comparable level to existing commercial membranes used in these applications, but importantly show greater resistance to attack by chlorine containing chemicals,” Professor Kentish said.



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The chlorine resistant membrane materials can cut out additional processing steps reducing operating costs. "They can also prevent the decrease in water flow that is currently observed with time due to biological fouling" she said.

The novel membrane technology uses layer-by-layer polymer assembly and has been developed by a collaborative research team including Professor Kentish with Professor Frank Caruso and Dr Jacky Cho from the Melbourne School of Engineering and Dr Anita Hill. The work was made possible through funding from the Science and Industry Endowment Fund (SIEF).

Ike Motsapi & Science Daily

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