

New membrane water treatment system to reduce toxic waste and waste disposal cost

It is expected to help the firm save up to 1.6 million litres of water a year.

By **Pranjal Mehar** - February 25, 2019



Water pollution is a problem that affects us at all scales in space and time, but also at the very essence of our being. While many parts of the world face major challenges due to limited freshwater availability. More than 70% of industrial wastes are dumped untreated into waters, polluting the usable water supply.

Industrial water treatment encompasses water treatment, process purification and separation, and wastewater treatment. For most industrial applications, the treatment costs an estimated \$500,000 to \$1.5 million inclusive of all necessary design, engineering, equipment, installation, and startup.

Now, the Separation Technologies Applied Research and Translation (START) Centre, in collaboration with Memsift Innovations Pte Ltd are building a new pilot plant to treat industrial wastewater that could potentially lessen the amount of liquid waste by over 90 percent. Moreover, it could recover precious metals from the treated water which can then be sold and reused.

The plant uses a novel water treatment system leverages a new type of hollow-fiber membrane. This membrane- built by Professor Neal Chung at the National University of Singapore- has three hollow cores allows a water flow rate which is about 30 percent higher.

The pilot plant is expected to filter over 90 percent of wastewater into clean water and can help the firm save up to 1.6 million liters of water a year (2/3 of an Olympic-sized swimming pool), resulting in a savings of \$250,000 in disposal cost.

Dr. Adil Minoo Dhalla, Managing Director of START Centre, said: "this is the first successful licensing agreement achieved by the national-level center since it started in 2016, which seeks to turn cutting-edge membrane research from Singapore's universities into real products usable by multinational and local companies."

"This pilot plant marks the first of many local [water](#) innovations which START is translating for commercialization. Using our cutting-edge membrane fabrication, module design, and testing

facilities, we are able to scale up novel technologies from Singapore's institutes of higher learning rapidly and to test them in real-life environments to validate their commercial value."

Dr J Antony Prince, Founder of Memsift Innovations, believes that the novel tri-bore hollow-fiber membrane from START Centre will help to improve the efficiency of their patent-pending thermal separation process, which provides unique benefits over traditional brine treatment and zero-liquid discharge solutions."

"Our filtration process operates at relatively low pressures and temperatures as compared to the conventional thermal-based separation processes. It saves energy, reduces operational cost, recovers precious metal and resources while helping to save the environment."

The new plant which will be located at a semiconductor company in Singapore. The START Centre is supported by the Singapore Economic Development Board (EDB) and [Nanyang Technological University Singapore](#) (NTU Singapore). It is part of NTUitive, the innovation and enterprise company of NTU Singapore.

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