Oil Water Separation Membranes

Efficient membranes for oil-water separation i.e., to filter oil from oil-in-water emulsion

The Invention

This invention uses super-oleo-phobicity under water to filter oil with less than 50µm droplet size with close to 99% efficiency. This patented technology uses a steel mesh coated with an oxide using a simple and scalable technique.



Market Need

- Water scarcity, tough environmental regulations on disposal of waste water from industries and oil fields is driving the market for membrane technology.
- The global revenue from membrane technology market is expected to reach about \$32 billion and specifically due to waste water treatment technology it is estimated to reach about \$12 billion by 2020 (Figure 2)



Applications

- Car Maintenance Workshops
- Sewage Treatment
- Water Purification

Project Status

- In its first iteration a lab prototype was tested in gravity based approach.
- In its second iteration and improvement membranes have been developed (but currently under testing) to work under high fluid flow and pressure conditions.
- Currently the membrane is undergoing tests for moisture/water removal from oils.

Looking for a Partner

- A proof-of-concept needs to be built and integrated with current oil-water separation units.
- Later, a pilot test needs to be conducted in collaboration with and industrial end-user.

Patent Protection

One Patent application (US15794034) has been filed covering the membrane and method of using it.

About KFUPM

King Fahd University of Petroleum & Minerals is a leading educational organization for science and technology. KFUPM Innovation & Industrial Relations is the IP management and technology licensing office tasked with taking innovation from lab to market place.

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