Ceramic
Membranes from Waste

Ceramic membranes are gaining popularity over polymeric membranes because of their superior mechanical and chemical stability. However, they are more expensive due to higher costs of raw materials and processing methods. To address this, EWTCOI researchers have developed a proprietary process to produce glass membranes. This involves grinding waste glass into fine powder and then binding it to create a porous ceramic membrane. In this way, less energy is required as compared to traditional production methods. Waste glass can also be utilised as a key raw material instead of being discarded in landfills. The patented technology has been licensed to a local SME for incorporation into their water filtration system under their social enterprise project.

EWTCOI can help you develop innovative technologies to bring your business to the next level.

Key Features & Benefits
- High porosity exceeding 75%
- High water flux of more than 1000 LMH/bar
- Three times higher in compressive strength
- Higher chemical resistance than polymeric membranes
- Capabilities to customise membrane thickness and pore sizes of 0.5 microns and above
- More than 99% removal of total suspended solids for domestic and car wash wastewaters

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Enterprise Singapore

Applications

- Removal of suspended solids and colloidal particles from waters
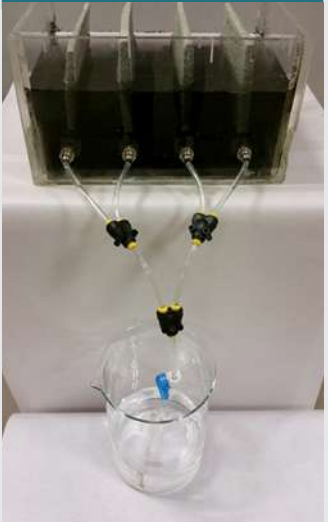- Adsorption of dyes and other organic materials

Process of converting membranes

Glass cullets

Foam Glass

Glass Paste

Glass membrane modules

Ceramic membrane filtration by gravitational force

home.

Polytechnic's innovations help save water and gas

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