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# Ceramic Membranes from Waste

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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

# Applications

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

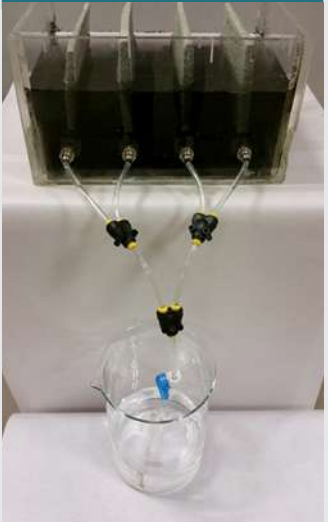
## Process of converting membranes



## Glass membrane modules



## Ceramic membrane filtration by gravitational force



## | THURSDAY, DECEMBER 22, 2011 | THE STRAITS TIMES |

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### Polytechnic's innovations help save water and gas

**8 BYTES TIME**

Water is the lifeblood of Singapore. It is essential for drinking, washing, and irrigation. The water supply is limited, and it is essential to conserve it. The Singapore Polytechnic (SP) has developed two innovative technologies to help save water and gas.

**1. Water-saving technology:** A team of researchers at SP has developed a water-saving technology for washing machines. The technology uses a sensor to detect the amount of dirt on the clothes and adjusts the amount of water used accordingly. This can save up to 30% of water.

**2. Gas-saving technology:** A team of researchers at SP has developed a gas-saving technology for industrial processes. The technology uses a sensor to detect the amount of gas used and adjusts the process accordingly. This can save up to 20% of gas.

These innovations are part of SP's commitment to sustainable development and environmental protection. They will help Singapore conserve its natural resources and reduce its carbon footprint.

## | THURSDAY, DECEMBER 22, 2011 | LIANHE ZAOBAO |

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### 义安院一年内提升技术 废玻璃处理废水成食水

**周晓冰 报道**

【本報訊】新加坡义安理工学院（Nanyang Polytechnic）在一年内提升其玻璃处理技术，将原本用于清洗玻璃的废水，通过先进的技术处理成可饮用的食水。这一技术突破不仅节省了水资源，还减少了环境污染。

义安院的研究团队表示，他们开发了一种新型的陶瓷膜过滤技术，能够有效去除废水中的杂质和有害物质。经过处理后的水可以达到饮用水的标准，且口感良好。

这一技术的应用将大大减少义安院在玻璃清洗方面的水资源消耗，并为其提供稳定的饮用水源。此外，该技术还可以推广到其他工业领域，为水资源短缺的地区提供解决方案。