



Seppure's process can separate industrial chemicals without heat | Photo source Seppure

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NANOFILTRATION REDUCES INDUSTRIAL CHEMICAL SEPARATION EMISSIONS

 SUSTAINABILITY

The new process separates chemicals at a molecular level without using heat

Spotted: An invisible pollutant, industrial chemical separation is a necessity in many industries, including pharmaceuticals, oil refinement, and semiconductor and vegetable oil production. Accounting for up to 15 per cent of the world's energy use, the process of separating chemicals for commercial and industrial use creates significant volumes of carbon emissions – possibly up to 10 per cent of the world's greenhouse gases.

Seeking a way to reduce the environmental harm of those processes, Singapore-based Seppure built a membrane capable of separating even the harshest chemicals at the molecular level without using heat. Built with nanotechnology, the membrane is so strong yet porous at a nano level that it can be reused multiple times, in a wide range of temperatures, and remain resistant to degradation from the chemicals with which it comes into contact.

Importantly, the membranes can be used throughout the processes of separation, from distillation to evaporation, without heat at any stage. By removing the need for high temperatures, the new membranes conserve water while also reducing carbon dioxide emissions.

Resource conservation and energy conservation are key aims in every industry. Springwise is spotting an exciting mix of initiatives that tackle these goals, from [magnetic levitation for frictionless motors](#), to a new method for [extracting lithium](#) that recycles water and brine.

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Takeaway:

Seppure lists several uses of the new materials on its website, including solvent exchange, monomer and solute removal, solvent recovery, and product upgrading. By reducing energy use so early in the life cycle of a product, brands have a platform from which to grow their sustainability initiatives. Product life cycle transparency is a complex undertaking, and one that many companies struggle to achieve. Making such a significant change provides a positive knock-on effect that helps to build momentum and drive innovation towards a carbon-neutral future for manufacturing.