Scientists testing life-saving water technology

University working on game-changing filter

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SCIENTISTS AT the University of Leeds are to work on a project which could help ensure cleaner drinking water for millions of people in the developing world.

The £1m project led by G2O Water Technologies to develop new, graphene-based water filters has teamed up with the interdisciplinary team at water@leeds, part of the University of Leeds.

G2O Water Technologies, a Manchester-based company has now taken its innovative, patented graphene oxide technology for comprehensive testing and evaluation by the Leeds team.

This collaboration adds further weight to the company's two Innovate UK-supported projects focused initially on oil/water separation and domestic water filters, totalling almost £2m in research and development expenditure. The ultimate aim is to develop the capability to treat water at a much lower cost and make it more affordable worldwide.

G2O will be working with the Public Health Laboratories within the School of Civil Engineering at the university to address real issues relating to water treatment in the water industry, including sieving of molecules or ions, removal of salts, oil, nuclear waste, dyes and other chemicals.

A pilot water treatment plant designed to test and develop the graphene water filters is scheduled for operation next year.

If successful the filters could mean that all water on the planet could effectively be made drinkable.

Tim Harper, chief executive and founder of G2O Water Technologies, said: "We believe we are currently the only company transferring its graphene water filter technology from an R&D laboratory to an industrial setting to prove how it could help solve real-world water problems.

"This will involve working directly with water industry experts to understand their challenges in detail and evaluate how our graphene oxide membranes would complement their operations and help deliver what consumers need from their water supply.

"Our work with water@leeds, along with having highly-experienced water industry professionals on our advisory board, means we are using the latest science and knowledge to address the right applications for the industry; helping treat water at a much lower cost and making it more affordable worldwide."

> *"The university is committed to making a real difference to the world."*
>
> Professor Martin Tillotson from the University of Leeds

Professor Martin Tillotson from the University of Leeds said: "water@leeds is one of the world's leading interdisciplinary centres looking at various aspects of water treatment and we are happy to share our expertise with G2O.

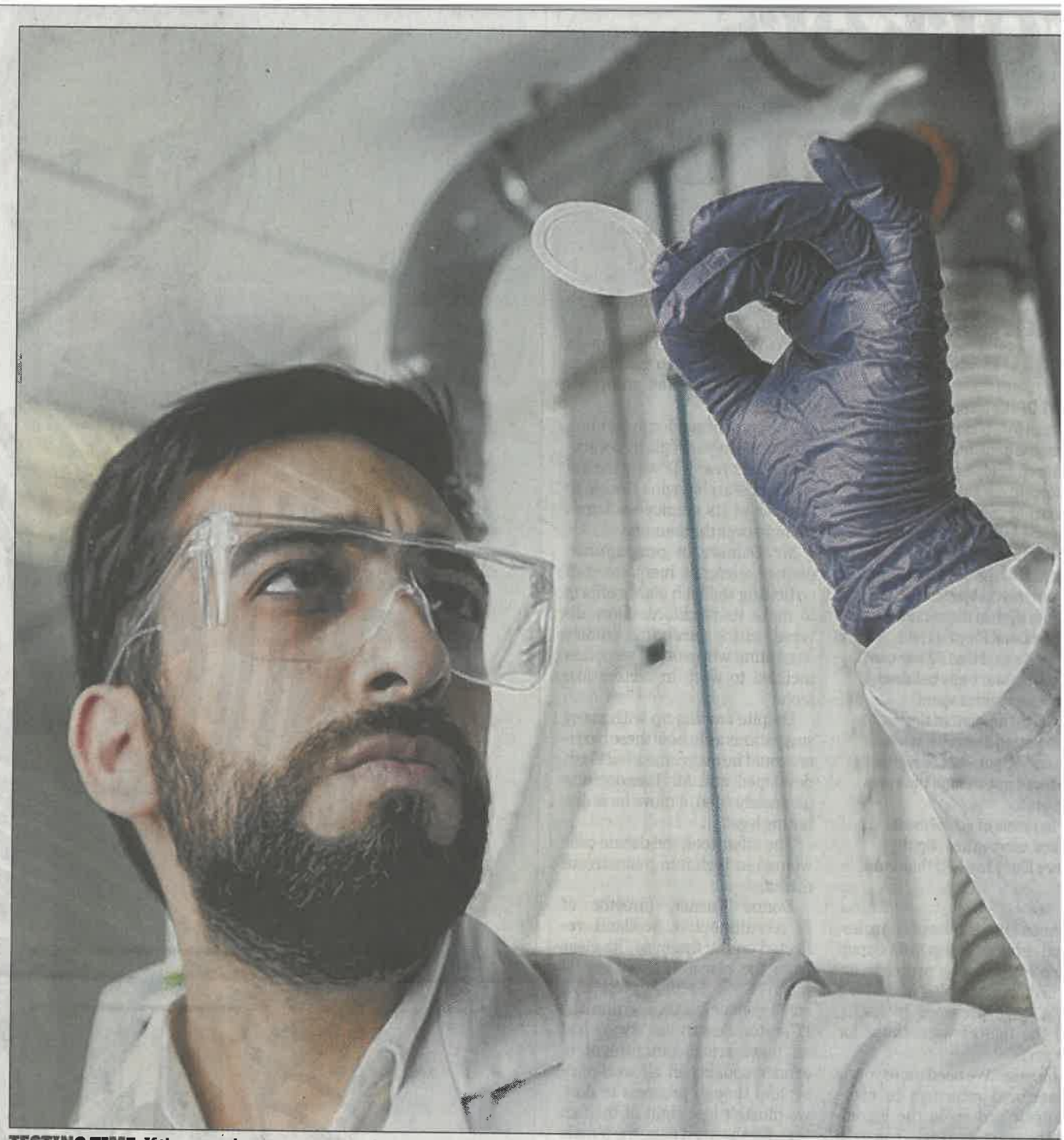
"The university is committed to making a real and telling difference to the world around us by supporting industry in developing innovative products, tackling the challenges which society faces."

Professor Tillotson said the joint project would involve developing commercially-viable water filtration membranes derived from G2O's graphene technology that can be scaled-up for industrial application. The company is also exploring a number of partnerships with major consumer product manufacturers and energy companies in order to accelerate the process of bringing a graphene water filter product to market.

G2O's patented technology works by creating low-cost printed graphene filters or by applying a graphene coating to existing membranes used in water filtration processes. This technique reduces the amount of ene needed to filter the water pass through the membrane by up 50 per cent, increasing throu put of purified water while co bating contamination and low ing the cost.

This new technology allo more water to pass through membrane, therefore rem ing the need for, and expense electricity needed to run pum and controls in existing wa treatment plants. The techn ogy wants to reduce the size a complexity of the plants, there potentially opening up the te nology to less developed areas the world.

Independent market resear suggests that the global mark for membranes used in water tration to be worth more th $25bn.



TESTING TIME: If the procedures are a success it means the filters could make all water on the planet to be effectively drinkable.

Filter that turns whisky clear

UNIVERSITY OF Manchester scientists recently used one of the graphene membranes to turn whisky clear as water.

Previously graphene-oxide membranes were shown to be completely impermeable to all solvents except for water.

However, a study published in Nature Materials, now shows that we can tailor the molecules that pass through these membranes by simply making them ultra thin. The research team led by Professor Rahul Nair at the National Graphene Institute and School of Chemical Engineering and Analytical Science at The University of Manchester tailored this membrane to allow all solvents to pass through but without compromising it's ability to sieve out the smallest of particles.