SMART FILTER PROJECT DEVELOPS NEW FILTER MEMBRANE COATING TECHNOLOGY



The filter technology developed within the Smart Filter project enables separation of oil and water from emulsified mixtures.

UNITED KINGDOM, FEB 28, 2019 -- The Centre for Process Innovation (CPI) has collaborated on a project to advance the development of a low-cost, self-cleaning coating technology for industrial filter membranes.

The Smart Filter project used graphene and its derivatives to create a coated filter membrane that offers increased resistance to fouling for industrial waste water treatment.

Membrane filters are used in a number of industrial separation applications but are afflicted by fouling, which typically lowers throughput or increases energy consumption, and reduces filter life.

Focusing upon oil water separation and nuclear waste water treatment, the collaboration, with G2O Water Technologies Ltd, Haydale Ltd and Sellafield Ltd, developed a repeatable, reproducible and scalable process to make coated filter membranes, which delivered a 30 per cent improvement in permeability when compared to an equivalent uncoated filter.

The principle of the coating technology had been demonstrated at lab scale and the Innovate UK-funded project enabled a significantly improved understanding of the underpinning science to be gained.

This allowed the key manufacturing methods to be scaled to viable industrial processes.

During the project, CPI focused upon understanding and developing the lab-scale technology that was transferred from the USA to the UK. CPI achieved a scalable coating process using ink jet printing and worked to understand process variables and their impact on product quality.

The project also allowed for significant progress to be made in advancing process technology for the safe and stable functionalisation of graphene species.

Graeme Cruickshank, Director of Formulation at CPI, said: "We are again delighted to support the development of such important technology-based improvements, with the potential in addressing some of the world's most pressing problems."

Craig Clement, Chief Operating Officer at G2O Water Technologies Ltd, said: "This project has been highly successful in improving and validating our graphene coating technology ahead of full commercialisation.

"The demand for clean water is enormous and we are now well placed to develop products to meet the market's needs."

Michael King, Lab and Development Section Head at Haydale Ltd, said: "Being involved in the Smart Filter project has given Haydale the opportunity to explore new applications for functionalised graphene, along with the support to develop the current plasma technology, which has enabled us to achieve a level of functionalisation that now provides a competitive and cost-effective product to graphene oxide."

From：https://www.waterworld.com/articles/wwi/2019/02/smart-filter-project-develops-new-filter-membrane-coating-technology.html