MEDIA RELEASE

Research collaboration to reduce environmental impact of textile dyeing

IMCRC activate funding helps advance atmospheric plasma coating technology to establish environmentally friendly alternative to conventional textile dyeing processes

Melbourne, 9 November 2021:

Dyeing is one of the most polluting and energy intensive processes in textile manufacturing. Australian textile technology expert Xefco and Deakin University's Institute for Frontier Materials (IFM) have embarked on a new $700,000 manufacturing research project, co-funded by the Innovative Manufacturing Cooperative Research Centre (IMCRC), to develop new atmospheric plasma techniques to improve conventional textile dyeing processes, both in terms of energy efficiencies and eco-friendliness.

Utilising Xefco's proprietary XSP™ technology - a new atmospheric plasma system that is being developed in collaboration with Deakin's IFM, Proficiency Contracting and IMCRC in parallel - the 12-month project aims to create a new, less water-dependent dyeing approach by applying atmospheric plasma coatings.

Dr Frank Chen, who leads the research at Deakin's IFM, along with Associate Professors Dr. Weiwei Lei and Dr. Alessandra Sutti, believes that it is possible to achieve significant energy efficiencies and sustainability benefits when using advanced plasma technology.

"The XSP™ technology we have been developing together with Xefco can be used to apply functional coatings to textiles and other materials via a patented process of plasma enhanced chemical vapour deposition (PECVD) in atmospheric conditions. This process can be extended and produce a range of highly durable treatments including colour, using less water, and dyeing agents," says Associate Professor Dr. Weiwei Lei.

With 85% of water used in textile manufacturing being consumed during the dyeing process, Dr. Alessandra Sutti adds that "even small improvements in process efficiency, such as small reductions in water consumption, will have a massive environmental impact".

Both are certain that the new atmospheric plasma coating technology will set a new path for the future viability of the textile industry.

Having developed and commercialised several cutting-edge textile manufacturing methods and systems, Xefco General Manager of Plasma Technologies Scott Whitby is positive that the new atmospheric plasma processes developed as part of this IMCRC activate project will transform textile dyeing and lead to a wider adoption of more sustainable production methods across the industry.

"The textile world has been lagging behind in sustainability for many processes; with dyeing being one of the biggest drains on resources. These days we need to think beyond prevailing pattern and invest in innovative, long-term sustainable solutions that will drive the change this industry needs to move into the modern era," says Whitby.

For Dr Matthew Young, Manufacturing Innovation Manager at IMCRC, this project is a great example of continued, industry-focused research collaboration.

"Xefco proactively invests in research and development into innovative manufacturing solutions to be produced in Australia. By partnering with two Deakin IFM teams of highly skilled researchers, the company gains complementary expertise in materials science, textile engineering and plasma physics and chemistry," Dr Young says.

“Together, they will rethink how dyeing and functional coatings can be applied in textile manufacturing, and make sure that innovation, sustainability and the environment are taken into consideration from the outset.”

END

About IMCRC

IMCRC is an independent and for-impact cooperative research centre with a successful, proven and scalable model for incentivising research and business partnerships that drive transformative commercial outcomes for participating Australian manufacturers. To date, IMCRC has successfully co-invested in more than 60 R&D projects, catalysing around $220 million in transformative manufacturing research. Find out more at www.imcrc.org

About Xefco

Xefco is an Australian-owned company that creates innovative textile and coating technologies. Leveraging a global network of research partners, Xefco develops advanced manufacturing solutions and applies cutting edge materials science with a focus on functional improvements, sustainable manufacturing and reduced resource consumption. Incorporated in 2018, Xefco’s technologies are now used by some of the world’s leading technical apparel and fashion brands, providing proven functional benefits, enhanced performance, comfort and protection with reduced environmental impact. Xefco continues to expand its technology portfolio with a vision to create a more sustainable future for the textile and garment industries. More information at www.xefco.com

Deakin University

Deakin, named after Australia’s second Prime Minister, is a young contemporary university with a reputation for being innovative. We aspire to combine excellent research and outstanding teaching with a strong focus on the communities we serve. Deakin is ranked in the top 2 per cent of the world’s universities in each of the major rankings and ranked 211 in the Academic Ranking of World Universities (ARWU). Deakin researchers are making a difference through world-class research and innovation. More information at www.deakin.edu.au

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