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ASIA EDITION

Australia develops world-first antiviral textile technology

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XViroblock™ antimicrobial copper treated textiles effective at inactivating SARS-CoV-2 in as little as five minutes.

Australian materials science and technology start-up, Xefco®, in collaboration with Swiss textile innovator, HeiQ, has developed XViroblock™, the world's first thin-film antimicrobial copper surface treatment for textiles that is proven to exhibit significant viricidal activity against SARS-CoV-2.

Studies conducted by the Peter Doherty Institute for Infection and Immunity (Doherty Institute) showed textiles coated with XViroblock™ inactivated SARS-CoV-2, with significant inactivation occurring within five minutes of direct contact.

By developing textile treatments that provide rapid viricidal and antibacterial functionality, Xefco hopes to reduce transmission of disease by reducing the persistence of pathogens on treated surfaces.

"While the antimicrobial properties of copper are well-known, we have developed a unique process and technology to apply an ultra-thin surface coating of the metal onto textiles," said Tom Hussey, CEO and Co-Founder, Xefco.

"XViroblock™ can be applied to hydrophobic materials that are difficult to treat with conventional textile finishing methods. This unlocks new possibilities for personal protective equipment (PPE), medical textiles and air filtration aiding in the defence against COVID-19. XViroblock™ may help reduce the transmission of infectious viruses particularly when materials cannot be replenished quickly or easily, such as PPE used by front-line healthcare workers, and air filters on planes and in restaurants," continued Mr Hussey.

Xefco specialises in innovative thin-film coating technologies for the textile industry offered to the outdoor apparel, fashion and home textile markets. At the onset of the pandemic, the business identified an opportunity to leverage its existing proprietary coating technologies and develop a process to apply a thin-film surface coating of copper onto textiles. The company has since shown efficacy of its technology against viruses including SARS-CoV-2, influenza A virus subtype H1N1, Human Coronavirus 229E as well as bacteria including *Staphylococcus aureus* and *Klebsiella pneumoniae*.

"Our experimentation proves the XViroblock™ treated fabrics exhibit significant viricidal activity against SARS-CoV-2," said Dr Julie McAuley, Senior Research Officer at the Doherty Institute.

Researchers from the Doherty Institute exposed XViroblock treated textiles to known infectious concentrations of SARS-CoV-2 for incremental periods of time before extracting and measuring the remaining infectious virus titre. The testing revealed a statistically significant reduction in infectious virus titre within five minutes of exposure, compared to untreated textile. Further

studies also showed that the treated fabrics significantly degrade the SARS-CoV-2 genome in a treatment concentration and time of exposure dependent manner.

XViroblock treated textiles have also been tested by an independent ISO 17025 accredited laboratory according to the ISO 18184 standard. Treated fabrics tested against influenza A virus subtype H1N1 and Human Coronavirus 229E showed a reduction of infectious virus present on the textiles of 99.95% and 99.9% respectively.

Xefco is collaborating with HeiQ Materials AG, Switzerland, a global leader in antimicrobial fabrics and textile chemicals to develop and manufacture XViroblock™ materials. Xefco has a long-standing collaborative history with HeiQ and is preparing to manufacture materials for use in Face Masks, PPE and other protective equipment.

Caption: Left (in white): *Tom Hussey – CEO and Co-Founder, Xefco ;* ***Right:*** *Scott Whitby – Research Engineer, Xefco*