

TECH OFFER

Cost-effective and More Durable Antimicrobial Coatings



KEY INFORMATION

TECHNOLOGY CATEGORY:

Sustainability - Sustainable Living

Chemicals - Coatings & Paints

Green Building - Indoor Environment Quality

TECHNOLOGY READINESS LEVEL (TRL): **TRL6**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO175248**

OVERVIEW

Controlling the spread of pathogens is crucial in high-traffic areas and healthcare environments. This can be achieved through environmental control methods like sanitising surfaces to prevent diseases from spreading through contaminated surfaces. However, it is labour intensive and impractical to sanitise all surfaces continuously.

Antimicrobial coating is an effective way to retard the spread of pathogens on surfaces by inactivating bacteria, viruses and fungi when they contaminate a surface. Despite being commercially available, the cost and durability of the anti-microbial coating technology can still be further improved. Common commercial coatings that are available to consumers have a gradually diminishing antimicrobial strength and mostly only last a few months. It is also difficult for some coatings to adhere onto slippery surfaces like plastics.

To address these challenges, the technology owner has developed a cost-effective process to fabricate more durable, high

performance antimicrobial coatings on different materials, including glass and plastic. They are seeking industry partners interested to co-develop, scale up and commercialise this coating for various applications.

TECHNOLOGY FEATURES & SPECIFICATIONS

- Inorganic coating for enhanced antimicrobial performance which works through multiple pathways in the absence of UV light
- Excellent antimicrobial efficacy at >99.99% against *E. coli* and *S. aureus* based on ISO 22196 and verified by third party laboratory
- Good durability with more lasting antimicrobial effect: In-house test with oscillating abrasion tester and zirconia balls as the abrasive media showed that this coating is more mechanically durable than other commercially available coating
- Possible to achieve >90% visible and NIR light transmission (400-1000 nm) and the transmission level is tunable
- Low temperature process using chemical bath deposition
- Suitable for both glass and plastic substrates

POTENTIAL APPLICATIONS

This coating is a factory applied coating and on glass and plastic surfaces that require antimicrobial function and high transparency such as windows in healthcare environment, high touch surfaces, touch display panels, etc.

Other products that may be developed include:

- Coating for built environment applications
- Coating for PV systems
- Air purifying coatings

UNIQUE VALUE PROPOSITION

- Cost effective deposition method using chemical bath deposition
- More durable with better abrasive and scratch resistance than other commercial spray-on antimicrobial coatings
- Multi-functional coating that is antimicrobial, anti-reflective and photocatalytic, effective through multiple pathways without UV light