

## PRODUCT

Anti-microbial coating.

## INDICATION

For use on common surfaces to limit pathogenic microbial contamination.

## VALUE PROPOSITION

- Novel antimicrobial coating
- Keeps bacterial concentrations within benign limit
- Demonstrated >50% decrease in healthcare-acquired infections with these microbial coatings
- A transparent and contaminant-activated coating

## DEVELOPMENT STAGE

- Demonstrated feasibility in a healthcare facility.

## INTELLECTUAL PROPERTY

US Patent Issued  
US 11439980  
US 9314027

## RELATED PUBLICATIONS

Krishna, V., Bai, W., Han, Z., Yano, A., Thakur, A., Georgieva, A., Tolley, K., Navarro, J., Koopman, B., and Moudgil, B., "Contaminant-activated visible light photocatalysis," Scientific Reports, 8,1894, 2018.

## CONTACT INFORMATION

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IDF 2018-81

# Antimicrobial coating to prevent surface transmission of infections

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## OPPORTUNITY

Healthcare settings are hubs of activity, bringing together patients, visitors, and staff who are all vulnerable to infections transmitted through commonly touched surfaces such as door handles, bed rails, sterile packaging, mops, faucets, fabrics, keyboards, and telephones. These surfaces can harbor dangerous pathogens, creating a continuous risk of contamination and infection. Existing solutions, such as antiadhesive coatings and polycationic coatings, are either ineffective in killing microbes or suffer from limitations like high costs, short lifespan, and potential for microbial resistance. There is a clear need for a more effective, affordable, and sustainable solution to break this cycle of contamination.

## PRODUCT

Our product introduces a contaminant-activated, transparent, photocatalytic coating designed for widespread use across various indoor surfaces. This innovative coating utilizes titanium dioxide (TiO<sub>2</sub>), which, upon contact with bacterial contaminants (specifically *S. aureus*, a common MRSA surrogate), activates a photocatalytic reaction under visible light to degrade the pathogens effectively. The inclusion of polyhydroxy fullerenes enhances this degradation process, ensuring rapid and efficient elimination of bacteria. Proven in a 12-month study, this coating has demonstrated the capability to not only kill bacteria but also maintain bacterial concentrations below safe thresholds, significantly reducing the incidence of infections. The current solution is also effective in combating fungal growth and effective on food products (data available upon request). This solution is economical, easy to apply, and safe for use on both indoor and outdoor surfaces, representing a significant advancement in maintaining hygienic conditions in healthcare environments.

### Value Proposition:

- Kills all microbes (completely degrades microbes)
- Easy to apply (conventional sprayers / surface coating)
- Safe to use (Food ingredients)
- Coating Effective for atleast one year

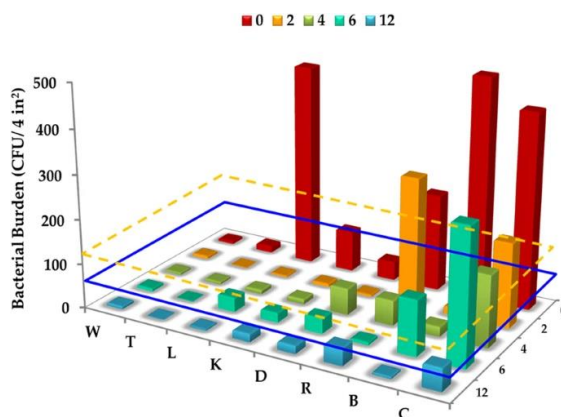


Fig 1: Reduction in bacterial burden on surfaces with antimicrobial coating. For a given surface, the bars represent counts (n = 3) at times from 0 to 12 months. W = Wall; T = Thermostat; L = Locker; K = Knob; D = Soap Dispenser; R = Bathroom Rail; B = Bed Rail; C = Counter. The blue dashed line indicates the threshold of microbial counts for benign surfaces, and the yellow dashed line indicates the average microbial counts on copper surfaces in a clinical trial.