

Compositions and Methods for Dispersing Biofilms

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Inventors

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Field

Microbiology

Technology

Biofilm Dispersal

Key Features

- Low cost method for biofilm dispersion
- Highly effective
- Environmentally-friendly formulation

Stage of Development

Proof-of-concept achieved on stone surfaces; testing on more surfaces ongoing

Status

Seeking commercial development and/or licensing partner

Patent Status

US Patent Application Filed
(September 2018)

Background

Biofilms pose numerous problems in a wide variety of industries ranging from medical, environmental, food and beverage and more. In addition to being implicated as a contributor to the growing antimicrobial resistance, biofilms inflict a significant financial burden upon affected industries. For example and in the case of a naval surface ship, an economic analysis indicated that the primary cost caused by biofouling was due to increased fuel consumption due to increased frictional drag. The cost of industrial biofouling and biocorrosion is estimated at over \$200 billion in the US alone. Additionally, microbial biofilms cause other problems such as fouling water filtration units, corrosion of pipelines, and complicate oil and gas extraction operations.

Technology & Competitive Advantage

Inventors at Texas State University have discovered and developed a composition and method for effectively initiating the removal of biofilm from surfaces. The inventors have demonstrated that specific concentrations of boric acid solutions are effective as a biofilm dispersion agent. The invention interferes with the ability of bacteria to adhere and anchor themselves to surfaces.

The invention ultimately provides a method and solution for removing biofilms that is cost effective, scalable and environmentally friendly. The potential competitive advantage this invention has over products already in the market and those in development are cost, performance and environmentally friendliness.

Opportunity

The global market for Anti-Microbial Coatings is projected to reach US\$3.8 billion by 2020. Demand for disinfectant and antimicrobial chemicals in the US was anticipated to rise 6.1 percent annually to \$1.6 billion in 2017. There will also be a strong trend towards combining smart antimicrobials with additional self-cleaning and self-healing functionality. By 2020 smart multifunctional coatings and surfaces are expected to generate are around US\$120 million.