Novel Antimicrobial Polymer Receives EPA Registration and NSF 51 for Food Contact Substrates.

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Abstract (300 word limit)

BIOSAFE®'s keystone product, HM4100 Antimicrobial, is registered for safe use in food-contact applications and complies with EPA and FDA, and is NSF 51 certified.

BIOSAFE® renders materials inherently antimicrobial. The organosilicon technology is more cost-effective and faster acting than silver-based additives, avoids discoloration, and is non-leaching.

HM4100 forms an interpenetrating network with the host polymer system. The HM4100 polymeric antimicrobial forms hydrogen bonds with the host polymer and becomes permanently entangled with the host such that the antimicrobial forms an interpenetrating network with the plastic resin or coating rendering the antimicrobial non-leaching.

BIOSAFE® technology provides an environmentally sustainable means of rendering food-contact products bacteriostatic, fungistatic, and algistatic. BIOSAFE® addresses the growing demand among the food prep, food service, and consumer food and beverage markets for increased hygienic cleanliness of the surfaces the food it touching such as plastics, coatings, and activated carbon antimicrobial properties without migrating, BIOSAFE eliminates the safety issues associated with leaching antimicrobials.

BIOSAFE® protected products contain no volatile organic compounds (VOCs), heavy metals such as arsenic, or polychlorinated phenols. Toxicity tests have demonstrated that BIOSAFE® products do not cause irritation or sensitization with or on skin con-tact. BIOSAFE®'s chemistry has been reviewed and approved by FDA and EPA, and is registered with EPA as HM4100 Antimicrobial Reg. No. 83019-1.

Data from new applications include food prep surfaces, beverage tubing, and food packaging films.

Image



Recent Publications (minimum 5)

1. Computer Keyboard Covers Impregnated with a Novel Antimicrobial Polymer Significantly Reduce Microbial Contamination, American Journal of Infection Control , Volume 37 , Issue 5 , E115 - E116
2. Comparison of the bacterial removal performance of silver nanoparticles and a polymer based quaternary amine functiaonalized silsesquioxane coated point-of-use ceramic water filters H Zhang, V Oyanedel-Craver, Journal of hazardous materials 260, 272-277
3. Enhancement of Surface Runoff Quality Using Modified Sorbents, Varun K. Kasaraneni, Laura A. Schifman, Thomas B. Boving,, and Vinka Oyanedel-Craver, ACS Sustainable Chem. Eng., 2014, 2 (7), pp 1609–1615
4. Gelest BIOSAFE – Protecting Textiles Safely, Donald J Wagner II and Joel Zazyczny, International Fiber Journal, October 2015
5. Safe and Persistent Antimicrobial Performance, Donald J Wagner II, SOFW Journal, August 2016



Biography (150 word limit)

Donald J Wagner II is the inventor of the novel silicon-based antimicrobial technology and is the Technical Marketing Manager for Gelest, Inc. Donald spent 10 years with BIOSAFE, Inc. during which time they invented, patented, and ushered the new silicon-based product through EPA and FDA regulations. In 2014, Gelest (a global leader in silicon and silane chemistry) licensed the technology from BIOSAFE exclusively. In March of 2016, Gelest acquired the technology outright. Donald was hired by Gelest to spearhead the BIOSAFE program. In April of 2017 HM4100 Antimicrobial (Marketed as "BIOSAFE") received full EPA registration for food contact substrates, and in July 2017 the product became certified under NSF 51 for food contact. Donald graduated from Virginia Polytechnic and State University in 2001.

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Notes/Comments: