

Novel Environmentally Friendly Coatings for Marine and Medical Applications

Published date: Feb. 12, 2016

Technology description

It is well known that ammonium salts deter settlement of organisms such as bacteria. This invention relates to coating formulations based on the modification of moisture cure siloxane elastomers with an alkoxy silane functional polymer containing ammonium salt groups. The mechanical properties of these coatings are similar to silicone elastomers, yet the coating contains biocidal moieties to deter settlement of organisms. To inhibit leaching of toxic components into the water, biocide moieties are tethered to the polymer matrix. Antifouling performance has been evaluated by assessing the ability of the novel coating to inhibit or minimize bacterial biofilm formation. Trials have been carried out on several marine and medically relevant microorganisms.

Scientists at North Dakota State University have combined biocidal and fouling release activities into a single polymeric formulation to develop a unique environmentally friendly coating that holds promise in both marine and medical applications. This novel formulation consists of biocidal moieties that are tethered to its polymer matrix, which in turn prevent them from leaching into the environment. Studies have demonstrated this biocidal moiety to be capable of killing several types of marine organisms that come in contact with the coating surface. Their complementary fouling release property enables those marine organisms not affected by the biocide to be easily sloughed off. Besides marine applications, this coating has been shown to render anti-microbial properties on medical devices.

Advantages

GREEN TECHNOLOGY! Biocidal components are tethered to prevent them from leaching into the environment. Marine applications: Ship hulls and other exterior surfaces exposed to marine water. Medical Application: Medical devices and hospital settings.

Institution

[North Dakota State University](#)

Inventors

[Bret Chisholm](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com