



Non-Confidential Description

Novel Coating Formulations Exhibiting Anti-Fouling Properties for Marine Vessels

Technology Case: RFT-157

Invention Summary

Scientists at North Dakota State University have invented a group of novel polymeric coating formulations that have been found to demonstrate its effectiveness in preventing marine-life fouling on surfaces exposed to salt and fresh water. The invention encompasses novel poly-siloxane-poly lactone block copolymer compositions that contain carbamate linking groups that provides superior compatibility with polyurethane coating compositions.

Application of these compounds in coatings on the exterior of salt- and fresh-water vessels may have good anti-fouling performance, a property that can promise significant commercial and economic advantages to parties involved in paints and coatings for ships and boats.

Benefits

Coatings utilizing these compounds significantly reduce the amount of fouling on the exterior of these ships which, in turn, convey certain advantages such as reduced drag in water with concomitant improvements in performance, such as decreased fuel consumption and reduced fleet costs.

Invention Premise

- This invention involves novel polysiloxane-polycaprolactone block copolymers where the linking group between the blocks is a carbamate group. This linking group provides better compatibility of the block copolymer with polyurethane coating compositions. Also included are star branched block copolymers where the linear polysiloxane polymer forms the central segment and multiple caprolactone polymers radiate from the two end groups, and crosslinked polyurethane coatings prepared from these block copolymers.

Patents

This technology is patent pending with fully preserved U.S. and European patent rights available for licensing/partnering opportunities.

The Lead Inventor



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Dr. Webster worked for Sherwin-Williams Company where he was involved in resin development for industrial coatings as well as long-range research in new resins and crosslinking chemistry. While in Chicago, he helped develop the Coatings Technology program at DePaul University and taught a course in coatings resin technology. In 1993, he moved to Eastman Chemical Company where he led project teams in the areas of applications development for new monomers, new chemistry for coatings systems, and polymer development for coatings. He joined the Coatings and Polymeric Materials Department at NDSU in the fall of 2001

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