



Non-Confidential Description

Novel Siloxane-Polyurethane Coatings for Marine Anti-Fouling Application

Technology Case: RFT-231

Invention Summary

This invention pertains to novel siloxane-urethane coatings that were developed from unique single-end-functional siloxane polymers. These reaction siloxanes are incorporated into polyurethane coatings and result in coatings having low surface energy but good adhesion and mechanical properties.

Benefits

- These coatings have novel properties with good adhesion, low surface energy and mechanical strength.
- The invention has potential commercial significance in the paint industry applications related to marine antifouling coatings, anti-graffiti and others.

Invention Premise

Invention based on the synthesis of (PDMS) Polydimethylsiloxane-modified polyurethane coatings to generate coatings that have low surface energy under water due to the crosslinking, and are tough with good adhesion to various substrates. Multiple components were mixed and applied to the substrate where the solvent evaporated and crosslinking took place. Due to the low surface energy of the PDMS, it preferentially rose to the surface of the coating. However, due to the organo-functional end groups, it reacted with the isocyanate and became incorporated into the polymer network.

Patents

This technology is patent pending with fully preserved world-wide 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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