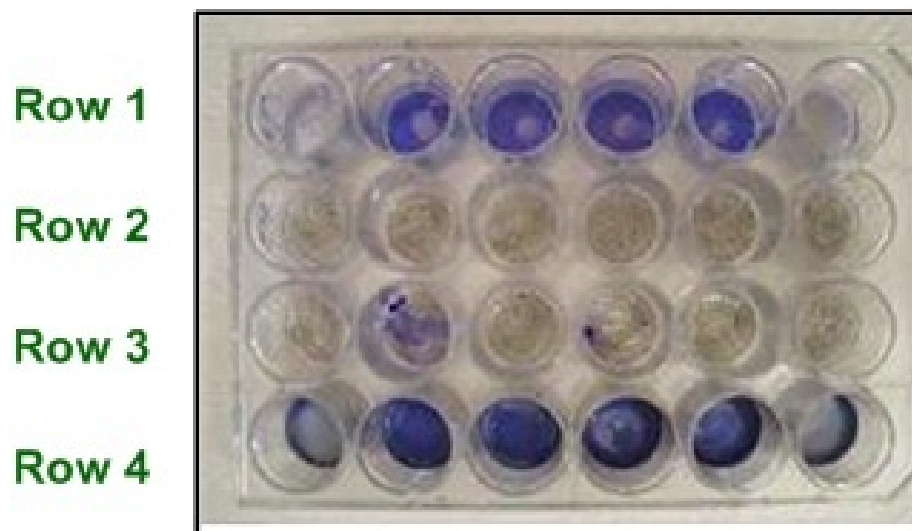


Novel Environment-Friendly Coatings for Marine Applications (RFT-133)

Invention Summary

The fouling of surfaces exposed to an aquatic environment is a serious problem. Fouling can inhibit the performance of marine vessels (significantly increasing fuel usage) and can lead to the spread of unwanted organisms to non-indigenous harbors, having a devastating effect on local ecosystems.



Row 1 – Reference

Row 2 – NDSU Experimental

Row 3 – NDSU Experimental after Water Jet

Row 4 – Intersleek Topcoat

Note: Blue = Growth of *Halomonas pacifica*

Many commercially available antifouling and biocidal coatings have been linked to environmental problems (for example, toxins from paint flakes). NDSU scientists have developed proprietary and novel, silicone-based compounds which incorporate tethered biocide moieties, and which can be used in coating formulations to prevent or reduce fouling by marine life and related substances on ship surfaces.

Benefits

- **GREEN TECHNOLOGY!** Tethering of biocide may reduce leaching of hazardous

chemicals.

- NDSU anti-fouling coatings improve fuel economy for marine vessels.
- Prevent or reduce fouling of ship hulls and other surfaces by aquatic organisms.
- Effective anti-fouling properties.

Invention Premise

This NDSU technology is an anti-fouling material for use in a marine environment which includes a copolymer having a carbon and/or silicone backbone with a pendant biocidal group, as well as an optional pendant fouling release group. The figure on the right shows an example of marine testing (20-day immersion) on two NDSU coating compositions as compared to two commercially available compositions.

Patents

Protected by issued US Patents 7,544,722 and 8,053,535 and a pending national phase patent application in Japan.

Contact

Saurabhi Satam, Business Development and Licensing Associate

ssatam@nds surf.org

(701)231-8173

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NDSU RESEARCH FOUNDATION

1735 NDSU Research Park Drive | Dept. 4400 | PO Box 6050 | Fargo, ND 58108-6050

701.231.6681 | Fax 701.231.6661 | www.ndsuresearchfoundation.org

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