

## “DIRT-RESISTANT” COATING ENABLES EASIER REMOVAL OF BIOFOULING ORGANISMS, GRAFFITI, ICE ETC.

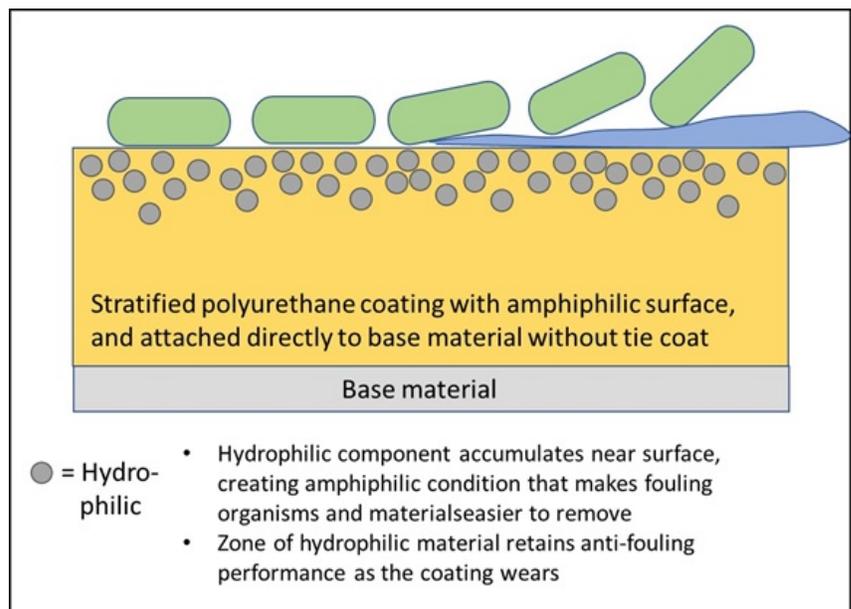
(RFT 380, 496, 551, 572, 588, 596, 610)

### Invention Summary:

Scientists at NDSU have developed a series of coating technologies around a siloxane-polyurethane backbone. These coatings have amphiphilic surfaces, which reduce the adherence of fouling organisms and materials. These are self-stratifying coatings, which incorporate hydrophilic materials (e.g. polyethylene glycol (PEG) or poly(sulfobetaine methacrylate) (poly(SMBA)) within a hydrophobic base. As the coating cures, the hydrophilic component migrates toward the surface, which becomes highly irregular with respect to binding affinity for ‘fouling’ materials and organisms. The hydrophobic sections interfere with materials that bind to charged surfaces. The hydrophilic sections interfere with materials that bind to uncharged surfaces. As a result, this technology creates an opportunity to develop a range of coatings that are easier to clean. Applications include oil-based marine and industrial coatings where polyurethane is a suitable base. This portfolio includes variations in both the hydrophobic backbone and the hydrophilic component, which leads to a range of fouling-release capabilities that are applicable to multiples marine and industrial settings.

### Benefits:

- Introduces fouling release properties to polyurethane coatings
- Comparable fouling release properties to industry standard
- Mechanical performance significantly improved over silicone elastomers
- Excellent adhesion eliminates the need for a separate tie-coat
- Enables easier removal of fouling organisms and materials, making restoration of surfaces much more practical than with existing anti-fouling coatings
- Anti-icing performance on marine, airborne, and land-based surfaces



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**Patents:**

This technology is patented in the U.S. and is available for licensing/partnering opportunities. Relevant Patents:

RFT-380 = [U.S issued patent 9,169,359](#)

RFT-496 = [U.S issued patent 10,647,878](#), US Continuation patent pending

RFT-551 = US patent pending

RFT-572 = U.S. patent application [2019/0309187](#)

RFT-588 = US patent pending

RFT-596 = US patent pending

RFT 610 = US patent pending

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