



*Non-Confidential Description*

## Unique Coatings with Phase Separation Properties for Use as Foul Release and Anti-Graffiti Paints

*Technology Case: RFT-158*

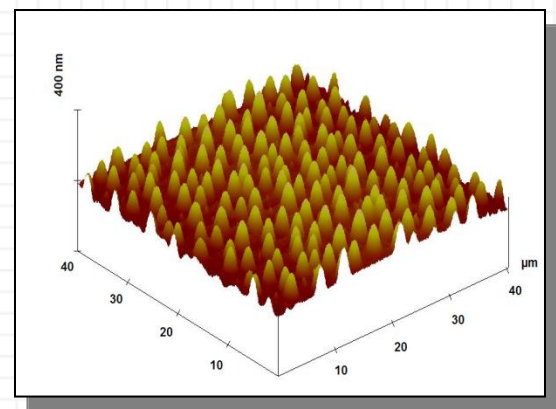
### Invention Summary

This invention pertains to novel coating compositions that spontaneously phase separate to form uniform micro-domains on the coating surface, providing a multiphase topographical surface structure with textured surface that inhibits adhesion.

### Benefits

The micro-domain projections have low adhesion properties which are further augmented by the surface texture that limits the effective surface area for adhesion. Properties include:

- Uniform structure: Textured surface develops with a predictable formation and design.
- Stability: Durable under a variety of environmental conditions, including soaking in water for extended periods of time.
- Minimal adhesion: coating texture limits contact points with any material applied, while contact surfaces also discourage adhesion.
- Solves industry need for a commercial coating that deters organism settlement or reduces adhesive ability, including anti-graffiti coatings or as release paper for adhesive labels. Biocompatible testing will occur shortly.



*Fig. Atomic force microscopy image of topographical coating surface*

### Invention Premise

This invention involves a unique siloxane-urethane composition that results in a spontaneous formation of a stable micro-topographical surface structure. Design conditions cause the siloxane rich domains to phase-separate during the film formation process restricting their ability to fully cover the surface of the coating. This system generates stable microstructured surfaces without using multi-step templating and molding methods traditionally used to produce surface topographical features. The microstructured coating can also be prepared and applied over a large area, inhibiting the adhesion of organisms or other substances to large surfaces.

Micro-domain projections extrude approximately five microns from the surface with a separation distance of five microns between projections.

## Patents

This technology is patent pending with fully preserved patent rights in the US, Europe and Japan and is currently 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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