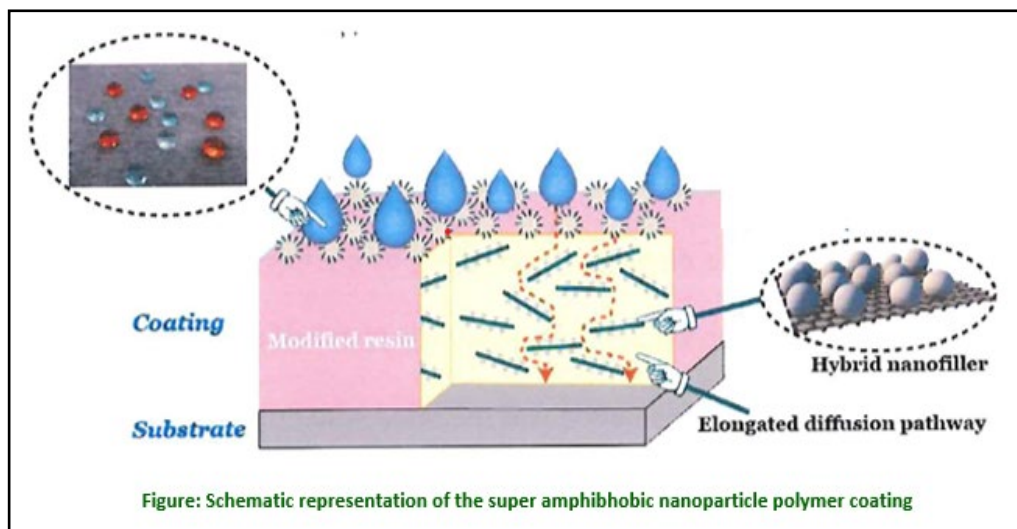


HYBRID NANOPARTICLE-BASED ANTI-CORROSION COATINGS (RFT 601)

Invention Summary:

Polymeric coatings have long been used for corrosion control of metallic structures in civil, mechanical and aerospace engineering. Recent developments in polymeric coatings include nanoparticle-based systems that claim improved mechanical and corrosion protection properties. However, fabrication of such systems is often time consuming, utilizes extensive amount of solvents and have high energy consumption; making the overall process expensive. Researchers at North Dakota State University have developed novel, hybridized, nanoparticle-based coatings to overcome these limitations. These high-performance, curable coatings comprise of a basal layer of modified epoxy, reinforced with hybrid nanofillers and, an additional top layer of amphiphobic nanoparticles. The basal layer, by itself, prevents fouling and corrosion of different substrates. The top layer may be brushed or dusted onto the basal coating to impart additional properties such as, anti-icing, anti-wetting and self-cleaning. The biggest advantage of these novel hybrid fillers is the retention of the polymer's fundamental properties with enhanced performance. Being tested on various substrates, this technology has applications in a myriad of fields.



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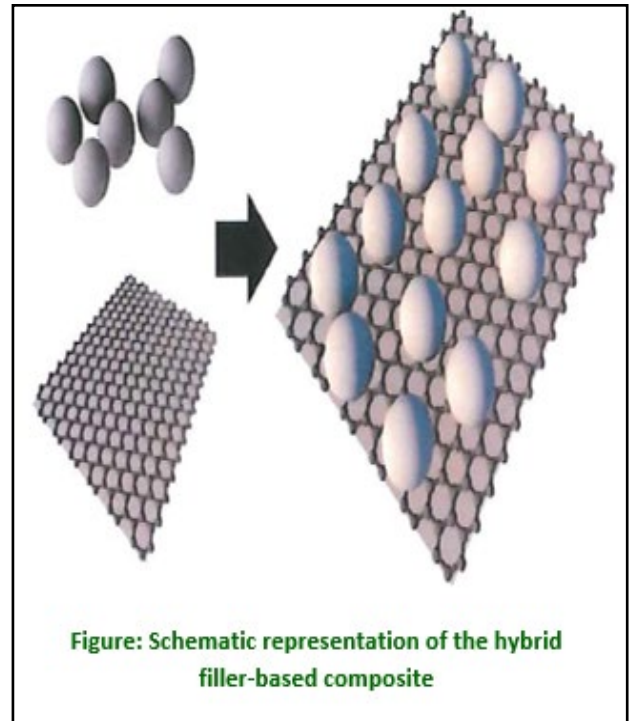
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Phase of Development:

This technology has successfully completed laboratory testing with reproducible results.

Benefits:

1. Cost effective, solvent free fabrication
2. Enhanced corrosion and fouling protection
3. Self-cleaning, anti-icing, anti-wetting properties
4. Increased water repellency and mechanical strength
5. Boosted shelf life and reduced maintenance costs
6. Retains nascent electrical, mechanical and tribological properties
7. Equal protection from water and oil,
8. Long term durability and low degradation compared to industry standards
9. Compatible with and effective on a variety of substrates

**Patents:**

This technology is patent pending in the U.S. and is available for licensing/partnering opportunities.

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