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Window coating technology tested on Navy ship, ready for commercialization

Pembroke, Va., Dec. 9, 2010 - A commissioned ship from the Norfolk Naval Base has successfully made multiple voyages into the Atlantic Ocean, equipped with a newly developed window coating that cleans itself and simultaneously reduces sun glare.

“HybridSil™ Hydrophobic is a new, self-cleaning, optically transparent, durable coating for windows,” said its co-inventor Michael Bortner, director of manufacturing process development for NanoSonic, Inc. of Giles County, Va.

Bortner and co-inventor Vince Baranauskas developed HybridSil™ Hydrophobic for military uses, but their advance materials company is intending to make it available to commercial industries such as eyeglass, automobile, recreational boat, and window manufacturers.

Bortner’s research started because the U.S. Navy was seeking an alternative means for maintaining visibility through the windows on the bridges of ships. With the inevitable weather conditions of wind, ice and heavy rain at sea, “it is “extremely difficult” to maintain visibility on a ship’s bridge, Bortner said. “Wiper systems do not provide a clear view during adverse weather conditions.”

In addition, he compared the ship’s wipers to current windshield wipers for cars where the blades need to be replaced continuously and dirt buildup can become difficult to remove.

NanoSonic’s window treatment is currently being considered for incorporation on both new construction destroyers and for retrofitting on existing ships. Potential additional Navy applications include periscope optics, decontamination room windows, and windows for flight operations.

When extended to commercial industries, HybridSil™ Hydrophobic could replace multiple automotive parts such as window wiper blades and embedded defrost heaters. They will protect the windows from icing, fogging up, and glare. They are able to clean without interfering with visibility, Bortner said. Drivers will no longer need to buy windshield wiper fluid with anti-freeze or wait for their defrost to work on a cold, winter morning.

If a driver is headed west at sunset, the anti-glare characteristic of HybridSil™ will help prevent the driver from having blind spots or needing to squint.

In terms of a window on a home or office building, if it is coated with HybridSil™, it will no longer be necessary to wash the glass. “Using just an ordinary garden hose, you will be able to clean the window,” said Richard Claus, president of NanoSonic and a past recipient of Virginia’s Outstanding Scientist Award.

NanoSonic, founded in 1998, is considered a leader in small business success in nanotechnology. A study conducted this past decade on the strength of small businesses in nanotechnology indicated NanoSonic was the leader of the 13 southern states in the overall dollar amount of contracts it received as well as the number of grants awarded. The report, *Connecting the Dots: Creating a Southern Nanotechnology Network*, was authored by the Southern Technology Council and Georgia Tech.

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Caption:

Co-inventors Michael Bortner, right, director of manufacturing process development and Vince Baranauskas, left, director of polymer science and engineering, both with NanoSonic, Inc., of Pembroke, Va., hold a piece of the new coating material HybridSil™ Hydrophobic.