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Project News

Navy Uses Rapid-Cure Coatings to Preserve Amphibious Ship Well-Decks

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The U.S. Navy's amphibious assault warships comprise the centerpiece of naval expeditionary forces. They are used to embark, transport, and land Marines and their equipment for a variety of warfare missions.

To transport personnel and equipment from these warships, the Navy uses air-cushion and landing craft or amphibious vehicles, augmented by helicopters and aircraft distinguished for their vertical takeoff and landing capability. These assault vessels feature a flight deck and a well deck that can be ballasted and deballasted to support landing craft.

The maintenance of these sea-going vessels is challenging and time-consuming. Of particular concern is preserving the well deck, which is subjected to a highly aggressive seawater environment. Because the well deck is the staging area for much of the work on the ship, it is important that its preservation be completed as quickly as possible.

To address this problem, the Office of Naval Research, the Naval Surface Warfare Center, the Naval Research Laboratory, and the Naval Sea Systems Command (NAVSEA) have embarked on a joint effort to assess and demonstrate rapid-cure, solvent-free epoxies and polyurethanes and their associated application technologies for use on well deck overheads.

An overriding goal of the program is to significantly reduce the man-hours required to maintain the well deck overheads using reliable, long-lasting products. According to NAVSEA, installation of edge-retentive, chemical-resistant, heat-resistant coatings will eliminate the need for maintenance for 10 years. The technology would reduce the time for painting from the current 15-day process to a two-day process, saving thousands of man-hours and millions of dollars over a 10-year period.

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"The program is proceeding on schedule, and a number of shipboard applications have already been demonstrated," said Beau Brinckerhoff, NAVSEA Senior Materials Engineer. "We envision that these rapid-cure technologies will extend to other naval applications, ultimately yielding significant additional savings and improving operational readiness."