

MR tanker benefits from new antifouling coating

An MR tanker coated with a Selektope-containing self-polishing antifouling paint has been found to be barnacle-free, three years after the coating was applied.

The vertical sides of the IMO II chemical and products tanker were coated with a copper-free Selektope-based antifouling product, with a service life of 60 months. Dive inspections conducted as the tanker approached the 36-month position in its drydock interval confirmed that the hull was completely free from hard fouling, with only light slime coverage. Independent third-party analysis of hydrodynamic data revealed that the tanker's added hull resistance remains at a very low level. These results illustrate the efficacy of Selektope coatings for a vessel engaged in active service that encounters significant exposure to severe fouling conditions and undertakes periodic idling activity.

The roughness of a ship's hull, often caused by failure in the marine coating and subsequent biofouling, can substantially increase frictional resistance and power requirements. This in turn increases fuel consumption and greenhouse gas emissions. By continuous monitoring and analysis, data can be collected on the performance of a ship's hull and propeller and whether it is affected by biological fouling or not. By measuring the amount of added resistance on the hull, extrapolated from total added resistance across the hull and the propeller, the ability of the antifouling coating to prohibit biofouling growth can be identified, as can the effect of any biofouling on the resistance and effective power of a ship.

Accurate performance tracking techniques enable ship owners to make

educated decisions about the efficiency of various coating technologies and to assess when or if treatments such as hull cleaning are required. When conducted through the application of an accurate analysis method, the measurement of changes in hull and propeller performance, although not a new practice, represents an important part of the industry's continued journey towards enhanced hull coating performance monitoring.

“Operators must act to minimise biofouling risk to prevent vessels being refused entry to a growing number of ports”

A heavily fouled hull is extremely impactful on fuel consumption and maintenance costs. However, growing regional action against the transportation of invasive aquatic species (IAS) via biofouling on ship hulls means that operators must act to minimise biofouling risk in order to prevent vessels being refused entry to a growing number of ports.

Unfortunately, biofouling risk is increasing globally. Average global water temperatures are increasing and intensifying so-called 'biofouling hotspots' across the globe. Tankers trading or laying idle in such waters, particularly

those in subtropical/tropical areas, require antifouling coatings that offer enhanced protection against biofouling. Therefore, the pressure is on coatings manufacturers to formulate antifouling coatings that can guarantee protection for all vessels, even if activity or trading patterns change.

It is for this reason that a growing number of coatings manufacturers are launching Selektope-powered products onto the market, as this antifouling technology delivers hard-fouling prevention performance for all existing and newbuild vessels pattern. **TST**

From hospital to ship hull

An anti-bacterial coating developed for hospitals by Leibniz-Institute for New Materials (INM) in Saarbrücken, Germany, could have applications in shipping.

Nano-Care is an anti-fungal, anti-bacterial coating originally developed by the Leibniz-Institute for New Materials and now marketed Nano-Care Deutschland AG. It is termed a third-generation ultra-thin coating, developed for transparent surface coatings (known as nano or ceramic coatings) as an alternative to PTFE and fluorocarbons.

It transforms any kind of substrate into a layer of positively charged atoms of nitrogen that attract negatively charged cell membranes of microbes. The microbes are punctured; the nano-level layer becomes an interception point for pathogen micro-organisms with anti-microbial effect.

In hospitals, Nano-Care is wiped onto a surface, and after curing, it can offer a self-disinfecting performance for a period ranging from several months to several years. The good news for shipping is that this innovative material could be used in the future to protect hulls.

According to Nano-Care AG chief executive Oliver Sonntag it has proven effective against algae and, in theory, could be applied to a ship's hull. "It is the logical development of invisible non-stick coatings; self-disinfecting coatings constitute the logical and consequential next step, heralding a new era of invisible coatings," said Mr Sonntag.



Biofouling can substantially increase frictional resistance power requirements (credit: I-Tech)