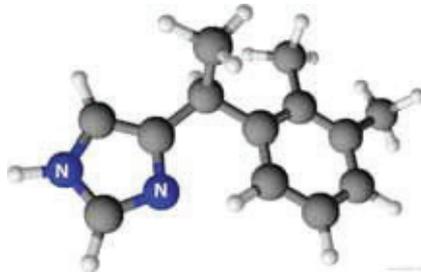


Swedish biotech company continues to drive antifouling innovation



I-Tech is a company name that has become well-known in the marine paints and coatings industry in recent years. Its active agent Selektop®[®], a substance which is added to antifouling coatings during the manufacturing process, repels barnacle larvae using a first-of-its-kind mode of action — it puts barnacle larvae looking to anchor themselves to a ship's hull into temporary swimming mode, rendering them unable to attach.

This desired effect is achieved by the science of selective receptor stimulation. That means that when the barnacle larvae approaching the hull surface are exposed to



The Selektop® coating (chemical name medetomidine) affects the octopamine receptors in barnacles, giving them no option but to swim away and find another place to settle.

the Selektop® (chemical name medetomidine) leaching out of the antifouling coating, their octopamine receptor is switched on making them hyperactive and making their legs kick as fast as up to 100 kicks per minute. Although the effects of Selektop® are reversible, meaning that once out of the Selektop® exposure zone the barnacle larvae return to normal function, while a larva is exposed to Selektop® they have no option but to swim away and find another place to settle.

Founded in 2002 off the back of

extensive academic research into the effect of medetomidine on the barnacle species *Amphibalanus improvisus*, also known as the infamous Bay Barnacle, I-Tech has commercialized the use of medetomidine to prevent barnacle fouling in marine coatings.

Selektop® binds to pigment and other particles in the paint system and is therefore continuously released in the same way as other active substances and components that prevent biofouling on the hull. The amount of paint required to coat a ship's hull can vary from a couple of thousand litres to over twenty thousand litres depending on the ship size and type. With an efficacy that requires just 0.1% concentration per wet weight of paint, approximately two grammes of Selektop® is required per litre of paint.

This means that this technology offers the opportunity for coatings suppliers to use just a fraction of the active substance needed to achieve comparable performance to traditional copper-based biocides or other alternatives. In fact, Selektop® is powerful enough to replace copper in copper-free paints but is flexible



Selektop® patch, a year after application, demonstrating its effectiveness.

enough to boost copper-based formulations as well.

To-date, over 300 ships have been coated with antifouling paints that contain Selektope®, a great proportion of which are bulk carriers. Based on supply orders received, I-Tech anticipates that the number of ships using Selektope®-powered coatings will exponentially increase in 2019 and beyond. Selektope® sales in 2018 increased by more than 60% compared with the previous year and the company expects demand to continue to increase year-on-year. I-Tech CEO Philip Chaabane told DCI: “interest in Selektope has never been greater. Our product Selektope® has proven to be a vital part of the puzzle to create yet further credibility to the fuel saving capacity that antifouling paints can offer.”

For owners and operators of dry bulk carrying ships, this Scandinavian innovation offers a solution to the growing problem of hull fouling, a problem for idling bulk carriers. A great number of bulkers lay idle in biofouling hotspots and have low activity rates. Average global sea temperatures are warming, intensifying biofouling risk within these hotspots, or ‘red zones’, located in warm waters worldwide. In these so-called red zones, antifouling products that can cope with intense biofouling pressures, particularly from hard fouling organisms, and continue to deliver antifouling performance for a ship at anchor for three to four weeks, are a must-have.

Of equal importance are antifouling solutions that are both well-suited to specific ship trading patterns, and varying activity levels. When looking at the future trading potential, ensuring that a ship is protected against hard fouling whether it be in constant active service, idle for long



The effects of Selektope® are reversible, meaning that once the barnacle larvae are out of the affected area, they return to normal.

periods of time, or have the risk of fluctuating between the two is an imperative strategy for any bulk carrier owner.

This future-proofing approach to antifouling coating selection, without any certainty of future trade, is exerting great pressure on marine coatings suppliers. This in turn is prospering great innovation and new approaches to the development of fouling prevention technology that makes use of I-Tech’s unique barnacle-repellent technology Selektope®.

Due to powerful effects demonstrated, Selektope® rapidly caught the attention of coatings suppliers in the early stages of its research and development over more than a decade ago. Fast forward to 2019 and the testing of Selektope®-containing paint formulations by coatings suppliers

continues to accelerate at a rapid pace, with a multitude of commercial products being launched onto the market every year.

“As demand for Selektope® soars, the number of antifouling products that contain our unique bio-repellent ingredients is expanding. This ensures that ship owners and operators have a selection of products to choose from, and confirms the flexibility and compatibility of our product with a range of different antifouling ingredients,” says Philip Chaabane, CEO I-Tech AB.

For Selektope®, the future is promising. This is a Scandinavian antifouling technology can enable superior static hard fouling prevention performance in addition to supporting the reduction of invasive species transfer and emissions by contributing to cleaner, more efficient hulls with a low investment barrier.

Conveying the cost benefits of IPCC

FLSmidth & Co. A/S, based in Copenhagen, Denmark, looks at what the real benefits of its recent acquisitions are to customers and to the market.

Primarily, complete pit-to-plant coverage means market-leading solutions throughout the mining process chain, as well as knowledge and optimized practices that can deliver new possibilities for customers to improve productivity and lower costs.

A central element in the recent expansion is customers can now access the deepest range of In-Pit Crushing and Conveying (IPCC) options in the mining

industry through one provider. The range of market-leading excavators and IPCC solutions provide uniquely compact, flexible, and fully mobile/relocatable options, allowing customers to improve throughput and productivity and lower CAPEX, OPEX and other operating costs.

“We are now the only OEM on the market that can provide the full value chain. This brings value to customer processes and allows us to work closely with the customer throughout their operations to find the best possible solutions that are underpinned by a harmonized optimization from the pit through to the plant. Being active in the processing side as well as the

mining side combines two very important aspects of the mining value chain. We can add to the productivity gains that our customers are looking for and close productivity gaps that we currently see on the market,” explains Thomas Jabs, Global Head of Mining Projects.

There will be improved synergy and coherence between products in the process line, allowing the potential for additional productivity. It is also easier to optimize the entire pit-to-plant process as it can be delivered from one source, explains Alexander Lehner, Director Service Line Management Lifecycle Enhancement: “All aspects of the