SUBSEA

PROTECTION AND PERFORMANCE

Ecoshield after 10 years.

Subsea Industries is looking for representative agents

To support our continuous growth, we are expanding our worldwide network of Subsea Industries agents. This allows us to reach a much bigger public directly than would otherwise be possible.

Subsea Industries NV was founded in 1983 to take care of the design, development and marketing of an evolving line of underwater hull and propeller cleaning equipment as well as a line of hard hull coating systems.

The purpose of the Ecospeed range of coatings and cleaning technology is to offer a long-lasting, non-toxic protection for all ships with a system that keeps a hull ultra-smooth and free of fouling for the service life of the vessel with minimal repair and no replacement. Instead of using chemicals to kill and repel marine fouling organisms, Ecospeed uses a hard, impermeable, impenetrable coating along with manual removal of fouling at an early stage.

Contact us if you are interested in joining our network and help us build a strong relationship with our prospects and customers. We look forward to hearing from you.

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Editorial: Extending the drydocking interval to 10 years

Drydocking a ship is a complex, expensive, time-consuming and stressful activity, regarded by most ship owners, operators, officers and crew as a necessary evil. Time spent in drydock is time spent out of service. It is becoming increasingly difficult to find drydock time available when and where one would like it.

Drydocking often takes a vessel well away from its normal operating route. Many different activities need to be scheduled for accomplishment during a drydocking and these activities may interfere with each other. The weather can be an important factor, particularly since drydocking usually involves painting.

That drydocking is necessary is not in question. In order to keep ships operating safely and efficiently for 25 years or more they have to be taken out of the water periodically for inspection and any needed repair. What is in question is how often this needs to occur. Technology is advancing and conditions which were prevalent twenty or thirty years ago are not necessarily present today.

Currently the usual interval between mandatory drydocking for most ships is five years, depending on type and age of ship. This has been extended to seven and a half for certain ships. A ten-year drydocking interval is a dream for most ship owners, operators, officers and crew – one which, if it could be attained, would reduce operating expenses and lower the cost of marine transport.

The challenge to extending the drydock interval

The main challenges to a ten or even twelve year interval between dockings are hull protection and fouling control. By "hull" here is meant the entire external underwater part of a ship including the wetted hull, the rudders, propulsors, stabilizers, thrusters, sea chests, bilge keels, cathodic protection system and all the other external, submerged features and appurtenances of a vessel.

The continual attack by salt or fresh water, cavitation, oxidation, abrasive particles (gravel, lava, sand), ice and occasional solid contact renders these parts of a ship particularly prone to damage, erosion, corrosion and general reduction or weakening of the steel, aluminum or other material from which they are made. Salt water is potentially more damaging than fresh.

The accumulation of biofouling in the form of plant and animal life which naturally adheres to any submerged object, manmade or not, causes the hull to become rougher and can also damage the protective coating. This in turn adds friction or drag to the hull and propellers. The result is that more fuel must be burned to achieve the ship's cruising speed. The rougher the hull and propellers become, the higher the fuel penalty incurred. This not only shows up in higher costs to the operator but also in increased environmental impact through additional noxious gas and particulate matter emissions resulting from the higher fuel consumption. With conventional coatings, the longer the vessel remains out of drydock, the rougher the hull will become.

In addition to this fuel penalty, biofouling on the ship's hull has recently come to be regarded increasingly as a vector for the translocation of invasive, non-indigenous marine species from one environmental zone to another. Precautionary guidelines and regulations are being pro-

posed and enacted to combat this threat. In general terms, the more fouled the hull, the greater the risk of spreading NIS.

Answering the challenge

The protection of the hull over a ten or even twelve year period can be accomplished with Ecospeed. This coating system of hull protection and fouling control can easily last for ten or twelve years without any need for drydocking. It can keep the ship's hull well protected and virtually free of biofouling for that length of time, avoiding the fuel penalty and preventing the translocation of NIS.

Ecospeed is non-toxic and environmentally benign. It is also cost-effective and will, when standardly applied and maintained, result in considerable savings for both owner and operator over the service life of a ship when compared to conventional coating systems.

We have published a White Paper that focuses on hull protection and fouling control to lengthen the interval between mandatory drydockings. If you are interested in receiving a digital or printed copy of this White Paper, contact me at info@subind.net or +32 3 213 53 18.

Subsea Industries NV
Boud Van Rompay
Founder

RRS Sir David Attenborough receives lifelong protection from Ecospeed


© Jon Payne

When the polar research ship RRS Sir David Attenborough was launched its hull was protected by the most environmentally-safe hull coating ever developed: Subsea Industries' ice abrasion resistant and washable Ecospeed.

RRS Sir David Attenborough is now afloat with a hull protected by the same Ecospeed coating that has protected its sisters, Ernest Shackleton and James Clark Ross, for many years.

The vessel will undertake world-leading environmental research into climate change and ocean protection. As such, the vessel required a fully ice-strengthened coating, without being harmful to the environment. Ecospeed fulfils that requirement.

Ecospeed is a safe, hard-type coating with zero toxic compounds. It eliminates the potential pollution of polar waters with heavy metals or biocides and hull contamination during research activities, which is extremely important to the scientific work the vessel will carry out.

Contact us for further information on the cost and energy savings Ecospeed will bring for your (ice-going) vessels.

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Ecoshield still in excellent condition on rudder after 10 years

Ten years after Ecoshield was applied on the rudder of a container ship, the vessel docked in Indonesia. The coating was still in excellent condition and only small touch-ups were needed. Ecoshield will keep on protecting this rudder against cavitation and corrosion damage.

The rudder of another container vessel from the same owner was given the same treatment recently. He now has over 50 of his vessels sailing with Ecoshield on their rudders. The recent docking in Indonesia confirmed once more that Ecoshield is the best possible way to protect your rudders against cavitation and corrosion damage.

Rudder of container vessel after sailing with Ecoshield for 10 years.

Different owners, different ship types, same lasting result

Over the last months the running gear of a number of other ships, including some new builds, was also coated with Ecoshield. It will be safeguarded for the entirety of these vessels' lifetime. No repaint will be needed during future drydockings.

Suited for newbuilds and existing vessels

Protection of the running gear of your ships is best begun at the newbuild phase. When a ship comes into drydock, maintenance of its stern area, especially cavitation and corrosion damage repair, can take a long time. There are strict procedures concerning blasting, painting, welding and propeller and stern tube seal work. Painting is then assigned to the end of the schedule. As a consequence it may be rushed or not done at all or else prolong the stay in drydock.

With an Ecoshield application one can avoid these problems from day one. At the most, quick and easy touch-ups amounting to less than 1% of the surface area will be required. Planning the maintenance of the vessel's stern area therefore becomes much easier.

The newbuild phase is the perfect time to apply Ecoshield. However, the coating can also be used to pro-

Application of first layer of Ecoshield on rudder of newbuild vessel.

Ecoshield is applied in only two layers.

Application is fast and can easily be scheduled around other work in the shipyard.

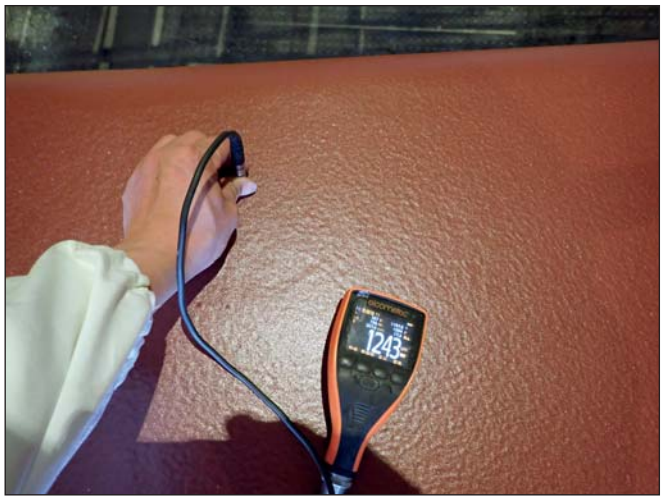
No cavitation or corrosion damage will affect running gear protected by Ecoshield.

tect vessels that have been in service for some time and are already facing cavitation and corrosion damage.

Ecoshield's flexibility makes it easy to adapt the application schedule to the rest of the activities at the shipyard or drydock in a way which does not interfere with them. Overcoating time can be as short as three hours, which means that for smaller surfaces such as rudders or bow thrusters the two coats required can usually be applied in one single day.

Groundbreaking protection for all running gear

Besides offering rudder protection, Ecoshield is also suitable for thrusters, azimuth thrusters, azipods, thruster nozzles, Kort nozzles,



Ecoshield inspector measuring the layer thickness.

Two layers, one application, no worries during future drydockings.

The areas covered during the block phase can be coated after installation without any effect on Ecoshield's quality.

This rudder will not have to be repainted during future dockings.

Overcoating time between layers can be as short as three hours.

Application is fast and can easily be scheduled around other work in the shipyard.

thruster tunnels and other underwater ship gear which needs special protection from corrosion. The extra strength coating protects these areas for the service life of the ship. There is no need for recoating or major repair.

Conclusion

The investment in a coating system that offers extra protection from day one is very easily won back. This becomes clear if one takes into account the cost for rudder repairs in drydock or underwater and the regular inspections required by a condition of class.

For this reason more and more owners have Ecoshield applied on the rudders and other running gear of a large part of their fleet or have it included in the rudder specs of their newbuild vessels. These owners invest in the right coating system for protection because they know the savings that will result.

You can give the rudders and running gear of your vessels the same lifelong protection. Contact us for more information. ■

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Typhoon series of underwater cleaning systems

In harsh underwater environments it is essential to have sturdy and reliable equipment. The unique design of our underwater cleaning machines provides the efficiency and durability required in such conditions. All our systems are carefully designed with operational safety as a prime consideration. A range of systems is available for various applications. All our cleaning units are sold separately or supplied with a complete support system including umbilical, tools and hydraulic power unit.

MC111

The MC111 is our smallest model specially designed for cleaning ship hulls, propellers and thrusters. The MC111 is very handy and can be easily taken into difficult corners and niches while still obtaining the desired results.

MC131

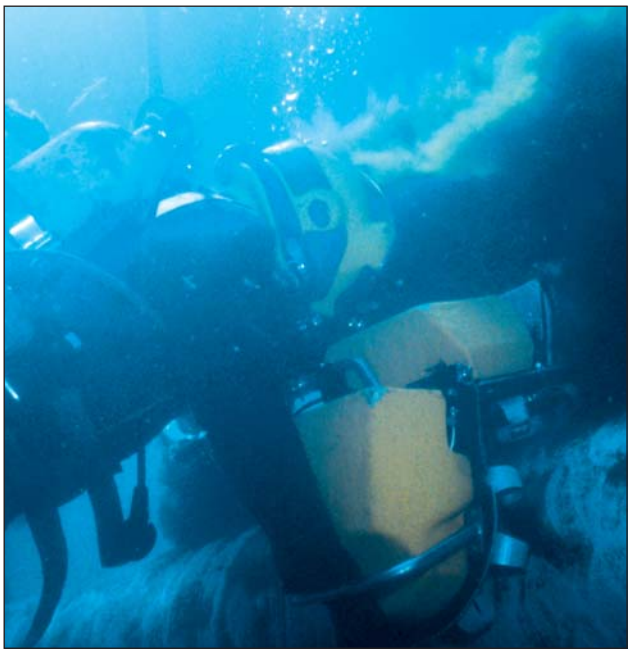
The MC131 is a compact, lightweight unit. It is designed for cleaning all kinds of marine fouling from yachts and smaller ships, niche areas on larger ships and offshore oil & gas platforms. The brush rotation speed is adjustable to achieve an optimum hourly cleaning rate.

MC212

The MC212 has an enviable track record, with 40 years of service. It is the most efficient cleaning machine currently available and is

MC111.

MC131.



MC312.

highly regarded by the industry internationally. The MC212 is designed for cleaning light, medium and heavy marine fouling from ship hulls, offshore oil & gas platforms (concrete or steel), jetties, piles, intakes and internal pipelines. The equipment has a self-balancing feature, which allows the operator to use the tool safely and effortlessly for long periods.

MC313

The unique patented design of the MC313 underwater hull cleaning unit will stand up to the most difficult underwater cleaning conditions encountered on various types of ships. The downward pressure of the brushes can easily be adjusted throughout the operation and the heads are self-adjusting to the contours of the hull. This, coupled with a powerful all-wheel drive system, are major technological break-throughs in subsea cleaning.

Different types of fouling can be treated with the appropriate tools so damage is prevented to the underlying paint layers. The MC313 is highly efficient. It is a tool for the true professional. ■

MC313.

Ecospeed, the certified abrasion resistant coating

Ecospeed has a Lloyd's Register certificate that recognizes it as an abrasion resistant ice breaker coating. This certificate confirms the durability and strength of the coating and shows the lasting trust in Ecospeed given by the classification societies.

The number one consideration in a hull coating for ice-going vessels and icebreakers is the ability of the coating to protect the hull in the harshest marine environment there is. Only a few types of coatings are capable of providing this protection. Typically they are certified for their ice-abrasion resistance qualities by the classification societies.

The abrasion resistant coating certificate allows owners of vessels intending to navigate in ice conditions to reduce the thickness of the plating of the ice belt if this area is coated with Ecospeed. The ice belt is the area on the bow just above the waterline that is most prone to mechanical damage from sailing through ice.

In the event of any conflict or ambiguity between this printout and the original electronic document, the electronic document shall prevail.

Certificate No: MNDE/2016/7392

Page 1 of 1

Recognised Abrasion Resistant Ice Coating

The product below is recognised as an abrasion resistant ice coating for ships intending to navigate in ice conditions.

If the coating is applied in way of the ice belt of ships intending to navigate in first-year ice conditions and is maintained in good condition during service, the thickness of steel plating in way of the ice belt may be reduced by up to 1 mm in accordance with relevant Rules and Regulations.

The recognition is subject to Lloyd's Register being informed of any changes in and modifications to the product's formulation or specification and the product being used in accordance with the manufacturer's instruction and with the relevant requirements of Lloyd's Register's Rules and Regulations.

Manufacturer:	Subsea Industries NV, Haven 29, Noorderlaan 9, 2030 Antwerp, Belgium
Product name:	ECOSPEED
Product colours:	Unspecified
Film thickness:	1000µm
Surface cleanliness:	Minimum Sa 2½ (ISO 8501-1)
Surface profile:	Minimum 75 µm
Date of expiry:	1 September 2021
Date of issue:	29 June 2016

Stuart Downie
Lead Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group

RECOGNISED

The number one consideration in a hull coating for ice-going vessels is the ability to protect the hull in the harshest marine environments.

This has already saved an investment for several owners. Building the hull requires less steel and it reduces the overall weight of the ship.

ECOSPEED®
SHIP HULL PERFORMANCE TECHNOLOGY

Corrosion damage repair made easy

Subsea Industries has a product for filling and building up a corroded and pitted steel surface to its original form prior to recoating with Ecoshield. Ecofix is as tough as the steel itself, machinable, and can be used to repair most pitting or corrosion damage on rudders, stabilizer fins, thrusters and other underwater gear.

Ecofix is used in combination with Ecoshield, the ultimate rudder protection coating. When a rudder or other piece of underwater ship gear has not been properly protected, the surface will become corroded.

Cavitation can cause severe pitting. The steel needs to be restored to its original shape with a smooth surface prior to recoating.

This is where Ecofix comes in. It is a superior, tested and proven filler. Because it uses the same basic resin as Ecoshield, the coating can be applied just one hour after the filler. The bonding and hardness are extraordinary. This is the effective alternative to very expensive fillers. And because it is part of the Ecospeed/ Ecoshield family, it is fully compatible with our coatings.

ECOFIX®
CORROSION REPAIR

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Subsea Industries NV, was founded in 1983 specifically to take care of the design, development and marketing of what has become an evolving line of underwater hull and propeller cleaning equipment as well as the line of hard hull coating systems.

All products produced by Subsea Industries have the same goal in mind: To keep the underwater part of your vessel in the best possible condition for its entire lifetime at the best possible performance.

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05/20