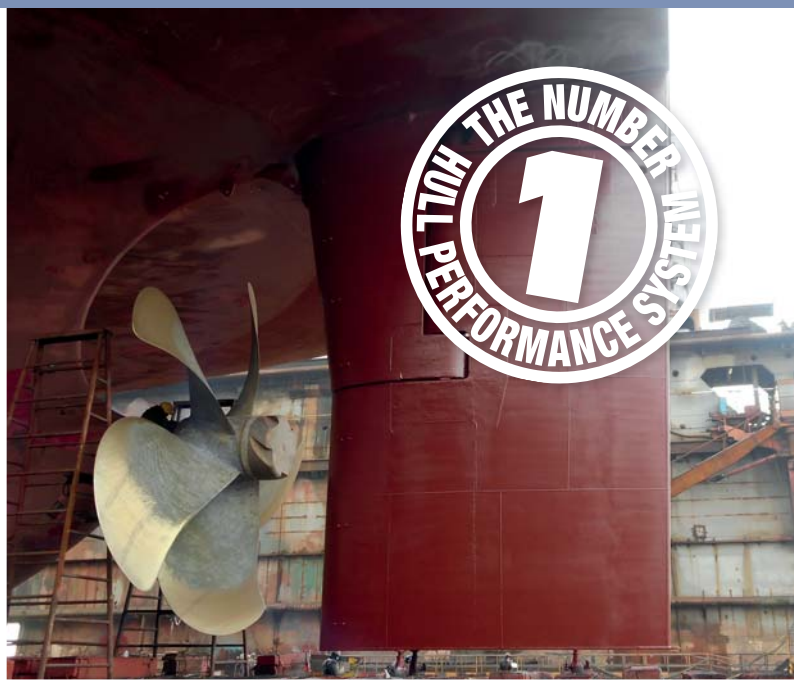
SUBSEA

PROTECTION AND PERFORMANCE

Magazine



Corrosion damage repair made easy

Test plate showing the benefit of an Ecofix and Ecoshield combination.

Subsea Industries has launched a new 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 damage 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 metal facing or very expensive alternative fillers. And because it is part of the Ecospeed/Ecoshield family, it is fully compatible with the coating. ■

ECOFIX®
CORROSION REPAIR

Subsea Industries NV
Phone: + 32 3 213 5318
Fax: + 32 3 213 5321
info@subind.net
www.subind.net

Editorial

In the first article in this magazine we write about some of the recent applications of Ecoshield on the running gear of a wide range of vessels. This award winning coating system was designed to offer lasting protection against cavitation and corrosion damage for all running gear.

In the next article we talk with Subsea Industries' Production Executive Manuel Hof about the many benefits our Ecospeed coating system can offer shipowners. The purpose of Ecospeed is to offer a long-lasting, non-toxic protection to all types of ships. This is done by providing a system that keeps the hull very smooth and free of fouling for the service life of the vessel with minimal repair and no replacement.

We hope you enjoy reading this magazine. Feel free to contact us if you want more information on Ecospeed or one of our other products.

Subsea Industries NV
Boud Van Rompay
Founder

Ecoshield, the lasting rudder protection

Condition of rudder coming out of the water, prior to Ecoshield application.

The running gear of a large number of vessels was coated with Ecoshield over the last couple of months. The applications were carried out in China, Ivory Coast, Turkey and Sweden on different types of ships. Among the vessels treated were several container vessels, car carriers, ferries and a tug.

Rudder after surface preparation.

Application of first of two identical Ecoshield layers.

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

The vessels treated belonged to twelve different owners. Some of them were new customers, some returning ones. They had experienced firsthand the devastating effect of cavitation on rudders and other running gear coated with a traditional coating system. For this reason they decided to use Ecoshield to ensure lasting protection against corrosion and erosion damage for the rudders, nozzle rings and tunnel thrusters of their vessels.

Suited for newbuilds and existing vessels

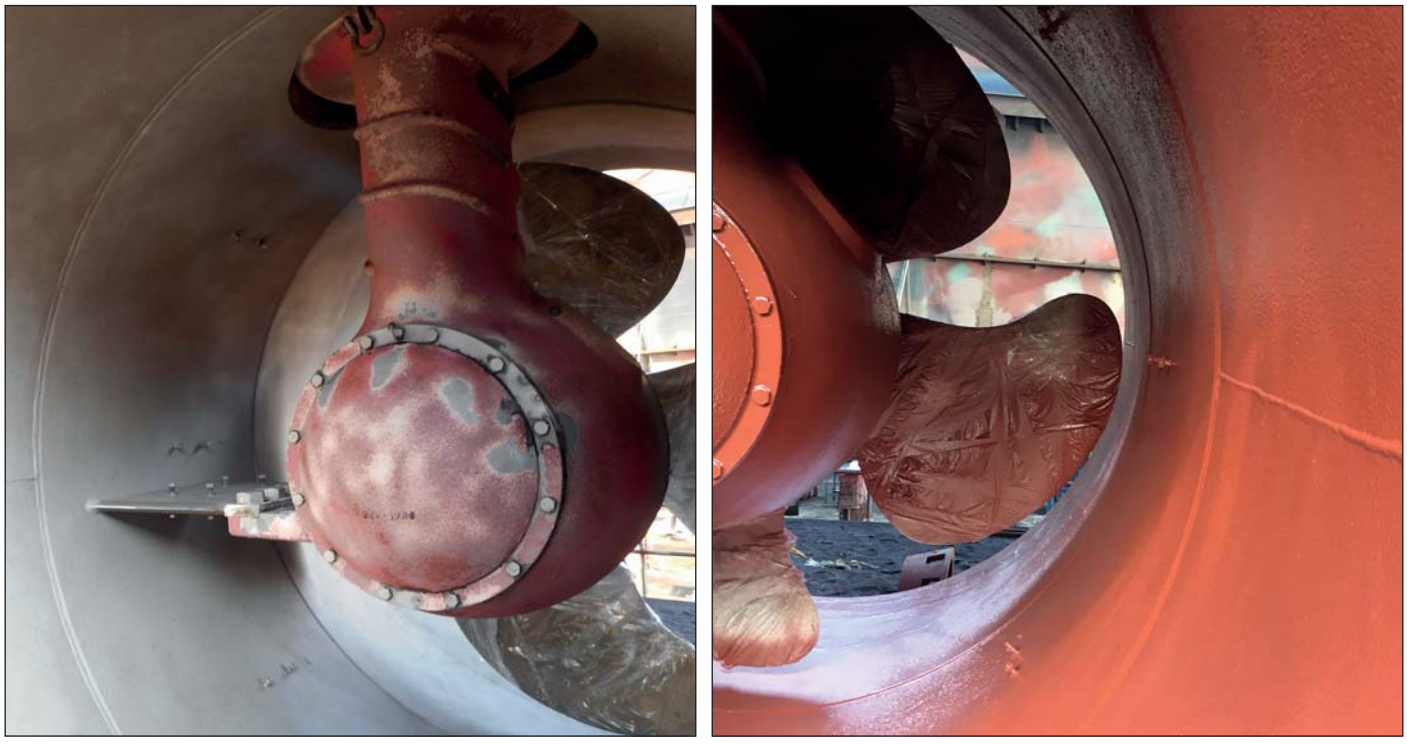
Protection of the running gear of your ships is best begun at the newbuild phase. When a ship comes into drydock, maintenance of its stern area, especially cavitation and corrosion damage repair, can take a long time. There are strict procedures concerning blasting, painting, welding and propeller and 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.

The newbuild phase is the perfect time to apply Ecoshield. However, the coating can also be used to protect vessels that have been in service for some time and are already facing cavitation and corrosion damage. Such was the case with some of the rudders coated over the last months.

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.

Ecoshield requires only two layers, making application fast and easy.

No repaint will be needed for the rest of the vessel's lifetime.



Thruster tunnel after surface preparation (left) and after application (right).

Groundbreaking protection for all running gear

Besides offering rudder protection Ecoshield is also suitable for thrusters, azimuth thrusters, azipods, thruster nozzles, 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. For this reason the thruster tunnels of several vehicle carriers were also coated together with their rudders, as was the nozzle ring of a ferry and a tug.

Conclusion

If one takes into account the costs of the temporary underwater repairs and the regular inspections required

Ecoshield gives lasting protection against corrosion and cavitation damage.

Ecoshield offers the best possible protection for a rudder's entire lifespan.

by a condition of class or the costs for rudder repairs in drydock, it becomes clear that the investment in a coating system that offers extra protection from day one is very easily won back. 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 the savings that will result.

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

ECOSHIELD®

THE DIAMOND STANDARD IN STEEL PROTECTION

Join us at Nor-Shipping 2017

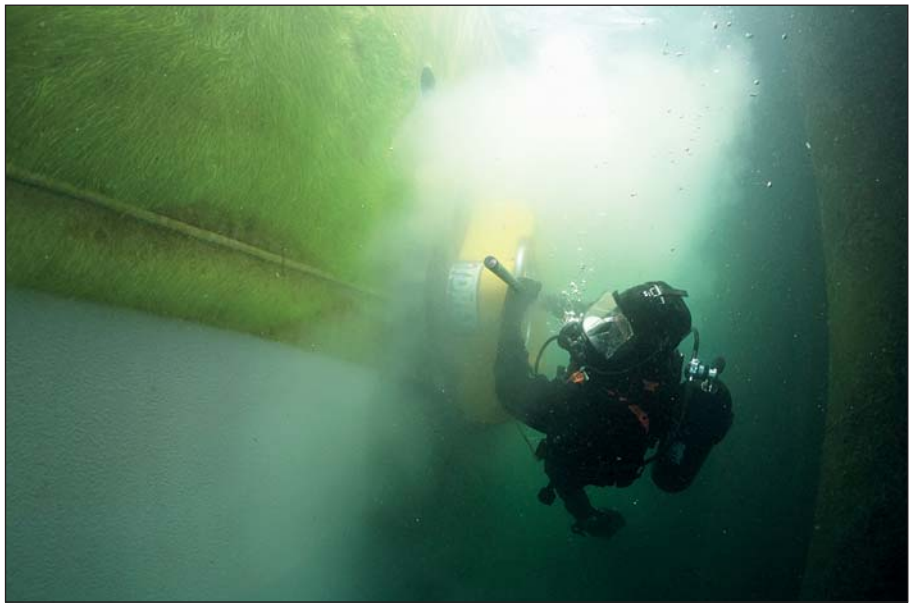
Subsea Industries will be present at Nor-Shipping in Oslo from May 30 to June 2. We would like to welcome you at booth C01-14g in hall C. We are part of the Holland Pavilion.

If you would like to learn more about how we can assist you, please visit us during the event. Our team will be happy to give you the information you need.

NOR SHIPPING

Ecospeed offers many benefits for shipowners

In 1993 research began on developing a new, long-lasting, non-toxic method of protecting ship hulls: Ecospeed. The coating system was introduced into the market in 2002. We interviewed Manuel Hof, Production Executive for Subsea Industries, to discuss the benefits Ecospeed has for specific targeted audiences.



Ecospeed can be cleaned as often as needed without restrictions and without damage to the coating.

Manuel Hof: Ecospeed is an environmentally safe underwater hull coating system that improves a ship's performance and provides it with long-term protection. It consists of a unique, entirely original and thoroughly proven system that combines the advantages of an easy-to-apply superior coating, a surface treatment for hydrodynamic optimization and a long term underwater maintenance service system. Ecospeed can be applied to all types of vessels, but our focus right now lies on ice-going vessels and cruise ships and ferries. Both newbuild and existing vessels.

Ice-going vessels

Manuel: The benefits for ships facing harsh icy conditions are durability, corrosion protection of the steel and resistance to impact with ice. In short: protecting the asset, the hull of the ship. Ecospeed is a certified abrasion resistant coating. Owners are allowed to reduce the thickness of the steel of the ice belt if this area is coated with Ecospeed. This gives them a significant

An Ecospeed application will protect a vessel against damage from impact with ice.

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.

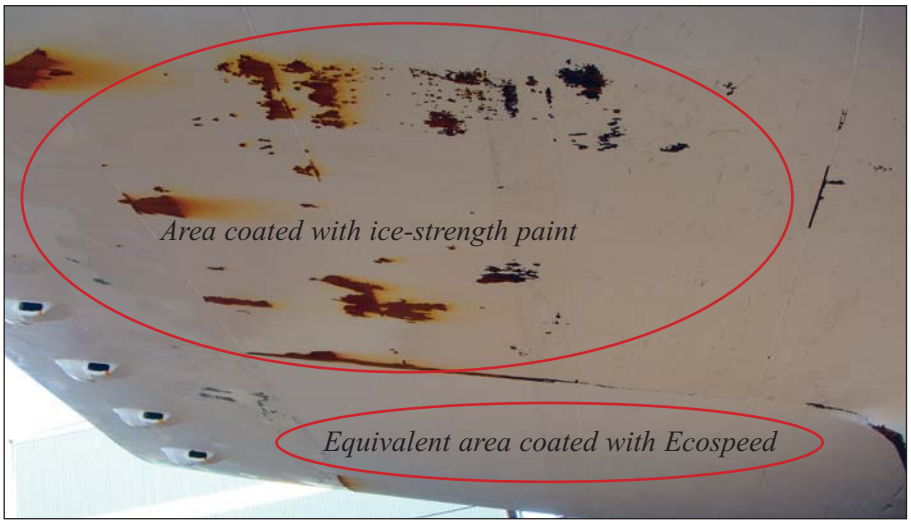
Manufacturer:	Subsea Industries NV, Haven 29, Noorderlaan 9, 2030 Antwerp, Belgium
Product name:	ECOSPEED
Product colours:	Unspecified
Film thickness:	1000µm
Surface cleanliness:	Minimum Sa 2½ (ISO 8501-1)
Surface profile:	Minimum 75 µm
Date of expiry:	1 September 2021
Date of issue:	29 June 2016

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

financial benefit during newbuild projects. Ecospeed is one of only a few coatings that have received this certificate.

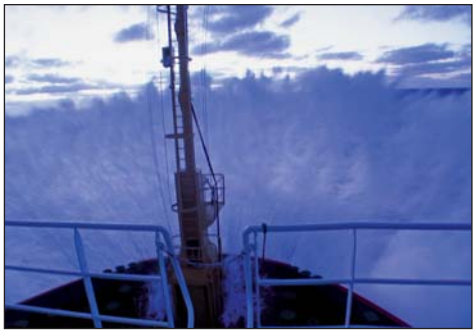
The idea to market Ecospeed as a coating for ice-going vessels grew organically as a consequence of the excellent results. The coating system had been applied on some ice-going ships when we got the request to test Ecospeed on an ice-breaker. We went ahead and coated one half of the hull while the other half was coated with a traditional ice-going paint, a leader in the field. The ship docked again six months later and Ecospeed was still in perfect condition, especially compared to the other coating. This showed us that Ecospeed was suited for ice-breakers as well and could withstand even the harshest conditions.

Another ice-breaker, British Antarctic Survey's RRS (Royal Research Ship) *Ernest Shackleton* is one of our best references. Ecospeed was applied eight years ago in 2009. Since then the ship has docked several times. Only a few liters were required for small touch-ups. The second docking took place after operating for four years in severe ice conditions. Following the performance on *Ernest Shackleton*, the hard coating was applied in 2015 to the hull of sister ship, RRS *James Clark Ross*. Results were again exemplary. Ecospeed has also been selected for RRS *Sir David Attenborough*. The 15,000gt research vessel, scheduled for operational duties in 2019, will be one of the most advanced polar research vessels in the world.



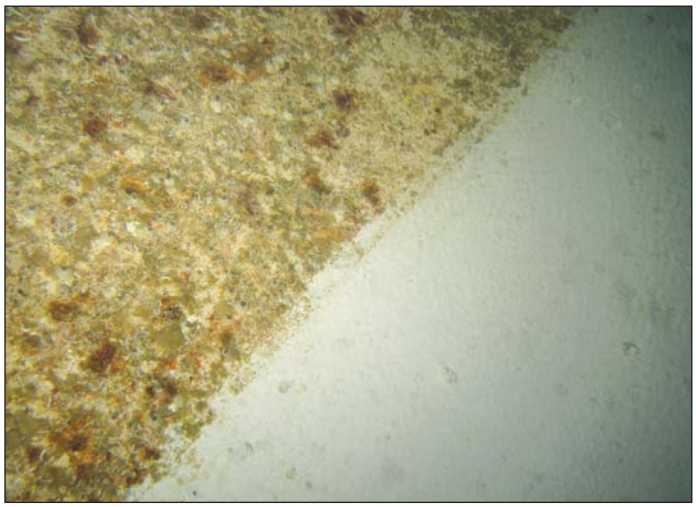
Cruise and ferry

Manuel: A second focus is on cruise ships and ferries. While these vessels also benefit greatly from the corrosion protection Ecospeed offers, the efficiency of hulls treated with the coating system is maybe even more important. Ecospeed is applied once and can be cleaned as often as needed without restrictions and without damage to the coating. Even long stationary periods of six months or longer in tropic waters offer no problem. Ecospeed is designed to be cleaned. Other products also have to be cleaned, but were not designed for this. Foul-release coatings are not meant for cleaning,



The RRS Ernest Shackleton *in Antarctic ice up to 2.5 m thick during the 2009/2010 seasons.*

Thick layer of fouling on cruise ship after laying idle in the Caribbean for seven months.



Fouling removal from cruise ship without damage to the Ecospeed coating.

The Staten Island ferry John Noble was coated with Ecospeed in 2011.

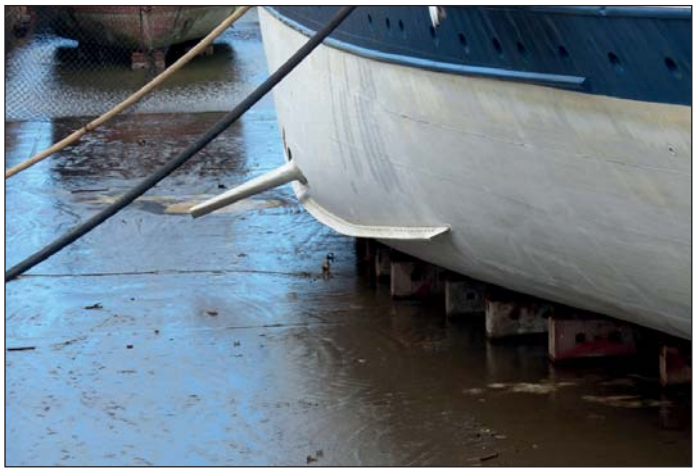
but to keep their speed they have to be cleaned anyway.

Cleanings are easy to organize because these ships are sailing on a fixed route. Ferries go from a to b and back and cruise vessels also go to fixed points with a schedule that is know well in advance. We can therefore easily implement a cleaning schedule. This allows owners to keep the friction of the hull low.

One major cruise line has been quoted as saying that they are saving 10% on fuel costs with Ecospeed compared to the earlier TBT coating which they replaced. Another cruise ship found that they gained 1.5 knots over sea trials speed when they replaced their hull coating with Ecospeed.

Environmentally safe

Manuel: All members of our coating family are ecologically safe. When we started to develop Ecospeed back in 1998, this was one of our main goals. It still is.



Ecospeed still intact eight years after application on cruise vessel.

The hull of Mirva VG *has been protected with Ecospeed.*

In 2008, stringent independent tests were carried out to provide scientific data and to authenticate the non-toxicity of the Ecospeed hull performance technology. This research proved that the coating is 100% free of toxic substances and that there is no negative effect on the water quality or the marine environment at any point of its application or use. Moreover, the massive amounts of VOC and zinc anode emission associated with conventional hull coating systems are reduced to almost zero.

VG-Shipping, the ship management arm of the Meriaura Group has selected Ecospeed for its environmentally-safe cargo ship newbuilds. Both their 4700dwt EcoCoasters have now been coated with our Ecospeed hard coating above and below the water line in VG Shipping's red and blue livery. VG-Shipping explained us that they "didn't want to use a traditional antifouling system because of the chemicals that they contain and found the Ecospeed solution was the most effective coating system for reducing drag." With Ecospeed they are also permitted to clean the hull underwater in the ports where they operate without damaging its waters and sediments.

Ecospeed was also applied on the hull of the multi-purpose research vessel *Imor* in Gdańsk, Poland. Owned by the Maritime Institute in Gdańsk, this catamaran was designed to perform a range of tasks such as oceanographic measurements and hydrographic or geophysical operations. Due to the nature of these tasks, the ecological benefits Ecospeed offers were very important in deciding on the coating.

In both examples the use of a 100% environmentally safe underwater ship hull coating was essential in fulfilling the ecological goals of the owners. Ecospeed offers a perfect lasting solution for any individual or company that takes its environmental responsibility seriously.

Taking into account the delicate ecological research this vessel is used for, the ecological benefits Ecospeed offers were very important.

Summary

Many other case studies can be found on our website. With some vessels sailing for ten years and counting without requiring repainting. ■

ECOSHIELD®
THE DIAMOND STANDARD IN STEEL PROTECTION

UV resistant corrosion protection

The latest member in our range of coating systems is ultraviolet (UV) resistant and preserves its color while at the same time offering the corrosion and abrasion protection our coatings are known for.

Regular coatings will quickly lose their original color when exposed to the ultraviolet radiation present in sunlight. This is problematic when colorfastness is required, as is the case in for example offshore wind farms.

Ecolast is highly resistant against salt, ultraviolet radiation, waves or even ice. Mechanical damage to the coated surface is minimized. This is especially important for (semi-)submerged structures like wind turbines that are located in splash or tidal zones.

Like all other coatings systems in the Subsea Industries family, Ecolast is also unaffected by corrosion. As a result no repaint is required once the coating has been applied.

Application of Ecolast is done in two homogenous layers, with no need for primer or any other extra layer. This makes the application very fast and easy to adapt to the schedule of a yard.

ECOLAST®

LONG TERM UV RESISTANT

SUBSEA INDUSTRIES






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.

www.subind.net

Subsea Industries NV
Phone: + 32 3 213 5318
Fax: + 32 3 213 5321
info@subind.net