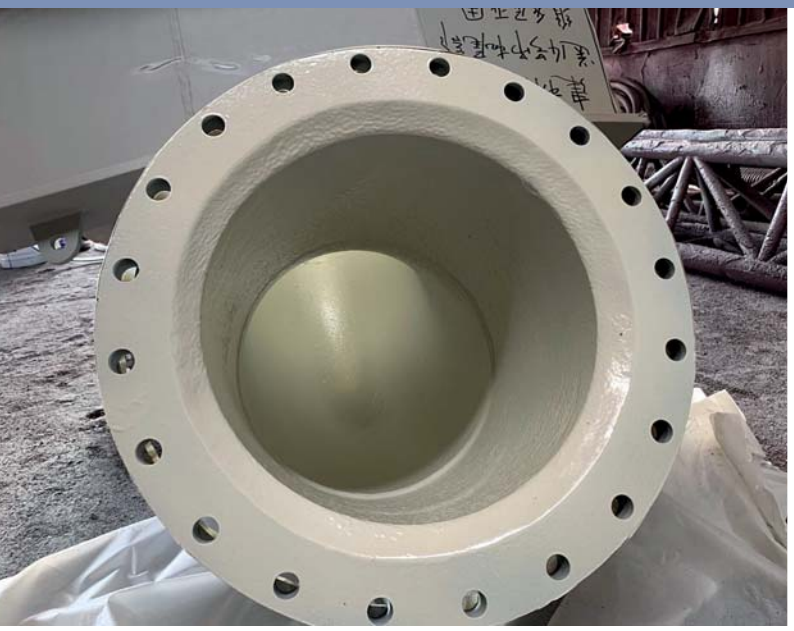
SUBSEA

PROTECTION AND PERFORMANCE

Magazine



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: The end of rudder cavitation damage

As any shipowner knows, a ship's rudder is particularly prone to damage caused by erosion and corrosion. The problem features more prominently in high speed container carriers and other fast ships, which are more seriously affected than slower vessels. However, it is a potential problem and hazard for all ships and boats. This problem results in frequent, costly repairs to or replacement of this vital part of the ship's underwater equipment. So far, the bulk of efforts to relieve this problem have not been fully effective.

A ship's rudder, placed directly behind the propeller to give the ship maximum maneuverability, is particularly prone to erosion followed by corrosion. The erosion in this case is caused by hydrodynamic cavitation. The forces involved are very large. It is as if the surface affected has been subjected to repeated, heavy blows from a hammer, as well as high temperatures. This causes what is known as cavitation erosion as the surface material, first paint and then steel, begins to flake away.

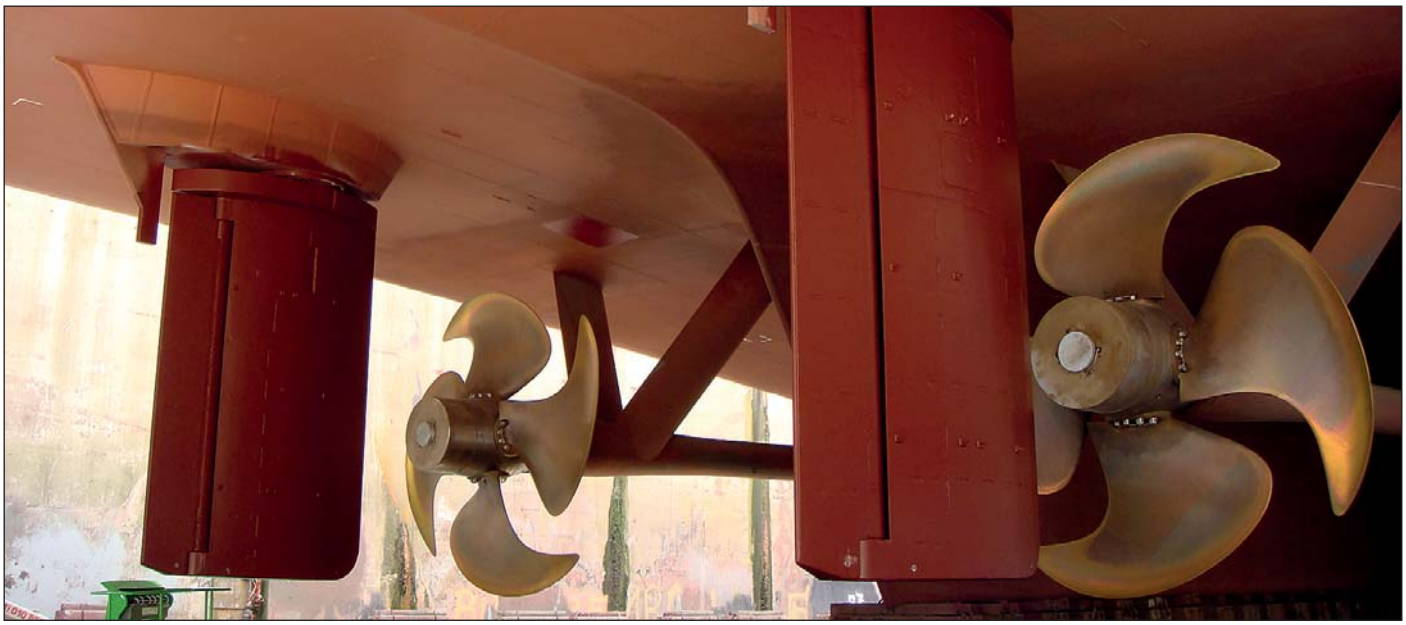
One need only examine a ship's rudder that has been subjected to cavitation to see that very severe damage is caused by this phenomenon. Rudders become deeply pitted; paint coatings and hard steel simply disappear; whole plates can fall off and the rudder practically disintegrates altogether, all as a result of this cavitation damage.

A rudder can suffer cavitation damage like this or much worse if not protected properly.

Rudder design has mitigated the problem somewhat but far from solved it. Most coatings generally fail to provide adequate protection and usually erode. The use of cathodic protection systems has no effect on cavitation erosion.

The ideal approach to cavitation erosion would be a protection of the rudder which prevented any such damage from occurring. This solution does exist and is called Ecoshield.

Ecoshield is designed for use on rudders, bulbous bows, stabilizer



With Ecoshield we have solved the problem of cavitation damage on rudders.

fins, kort nozzles and other underwater gear which requires special protection. The coating has proven 100% effective in protecting all running gear from cavitation.

Aside from some minor touch-ups, none of the rudders that were properly prepared and coated have had to be recoated, even after more than ten years. None of them have suffered from cavitation damage since the coating was applied. For those shipowners and operators who have tried this coating for their rudders, the cavitation damage problem ceased to exist.

In terms of preparation and application requirements, the coating is not particularly demanding. The surface must be grit blasted to remove any previous coating and create a clean surface. Ecoshield is applied in two homogenous coats. The second coat can be applied approximately three hours after the first one, allowing very rapid completion of the coating job. No primer, no epoxy, no tie-coat, no AF. Once applied and cured the coating forms an extremely tough and durable surface which will continue to protect the rudder for the full service life of the ship without the need for replacement.

Since the original application, over 500 rudders have been coated on a wide variety of ships: cruise ships, cargo vessels, container carriers, ro-ro cargo ships, a cable layer, a dredger, crude oil tankers, research vessels, ice-going ships and ice-breakers, tugboats, a reefer, passenger ferries, bulkers and others.

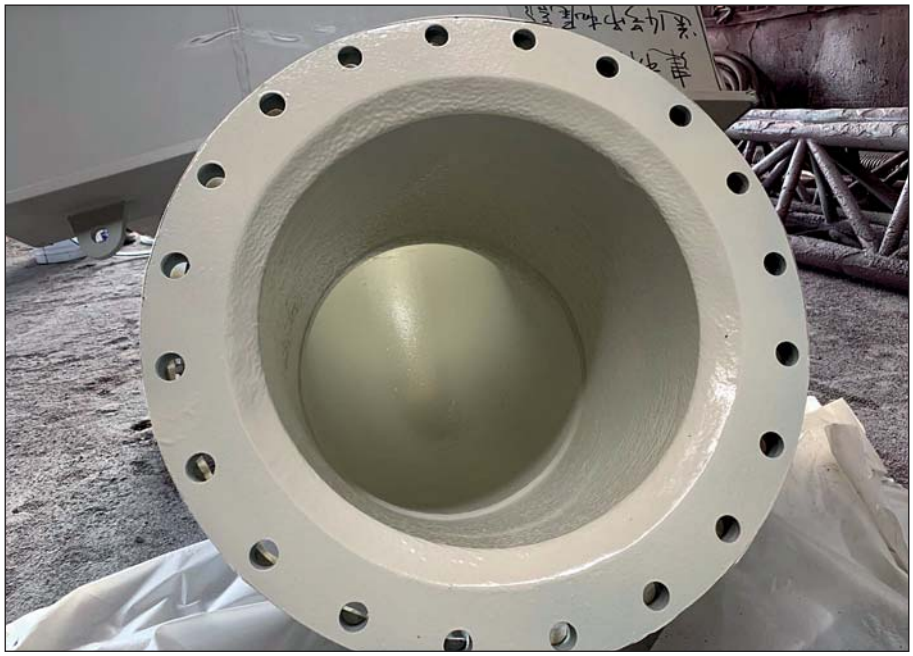
Shipowners and operators can consider the problem of cavitation damage to rudders to be solved. The solution simply remains to be implemented on all ships afloat to make this vexing problem a thing of the past.

Rudders, thruster (tunnels), nozzles and other running gear can be protected with Ecoshield.

Subsea Industries NV
Boud Van Rompay
Founder

Lasting protection for scrubbers and outlets

Over the last week our Ecospeed coating system was applied on the inside of the scrubber of a container ship and the scrubber pipe and outlet of an oil tanker. This demonstrates that Ecospeed is not only the best option for the underwater hull of a ship but can also be used for a wide range of other purposes. The result is a lasting, non-toxic protection against corrosion, cavitation and mechanical damage.



Inside of scrubber pipe protected with Ecospeed against corrosion.

At the start of 2016 the inside of the scrubber was coated with Ecospeed for the first time and this on a roro ship in Landskrona, Sweden. The scrubber was located in one of the ballast tanks of the vessel. A lasting, chemical resistant coating was needed that could withstand the process of filtering out the hazardous pollutants of the exhaust gasses.

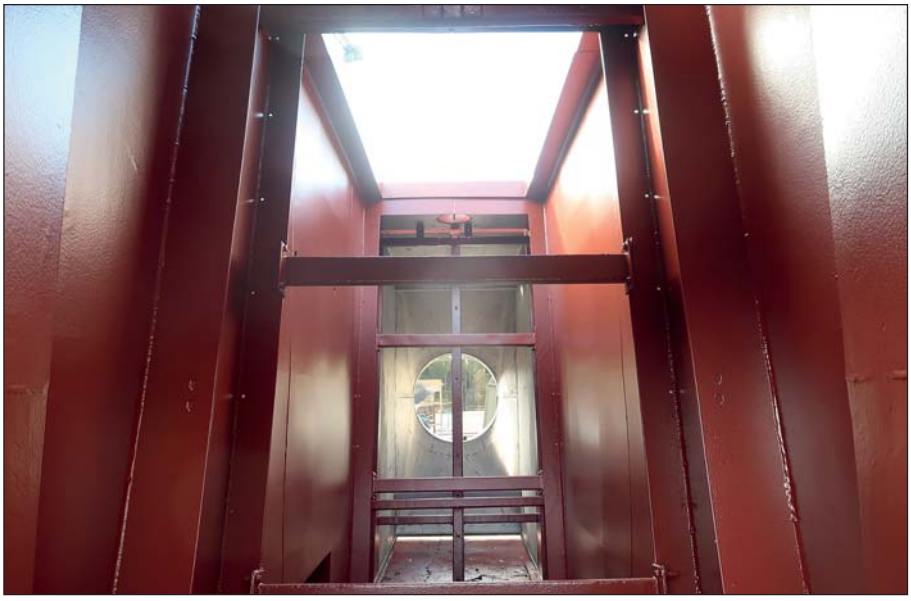
Since then Ecospeed has been applied on scrubber systems regularly. Just last month the inside of the scrubber of a container vessel and the scrubber pipe and outlet of an oil tanker were protected with our coating system. Similar applications have been planned for both customers in the near future.

Ecospeed application on scrubber system of oil tanker.

Because of the tight regulations on emissions in the shipping industry, the installation of an exhaust scrubber system has become increasingly widespread. This unfortunately has also led to an increase of corrosion damage on scrubber pipes and outlets which results in water ingress in the engine room, ballast tanks and cargo holds.

Ecospeed however is highly chemically resistant. Using the coating to protect the exterior outlets as well as the interiors of scrubbers will prevent corrosion damage and the resulting consequences.

Ecospeed is highly resistant to chemicals, making it ideal for scrubbers.



Inside of scrubber after application of second layer.

No corrosion damage will appear on the scrubber.

There are also several other benefits that make Ecospeed the perfect choice.

- The coating system is highly chemically resistant. Taking into account the nature of the process taking place inside the scrubber, this is essential for our customers.
- Ecospeed lasts the lifetime of a vessel. No repaints will need to be scheduled during future dockings of the ship. This saves on time and money.
- We have been given a B1 classification by DNV GL after testing the coating's suitability as a ballast tank coating. B1 is the superior grade in a six grade classification system.
- It is a true biocide-free solution. Independent research has proven that the coating is 100% toxin-free and that there is no negative effect on the water quality or the marine environment at any point of its application or use.

Ecospeed fits in seamlessly with the environmental idea behind scrubber systems. It is a lasting, chemically resistant coating that will withstand the hazardous pollutants and protect the scrubbers for the lifetime of the vessel.

Conclusion

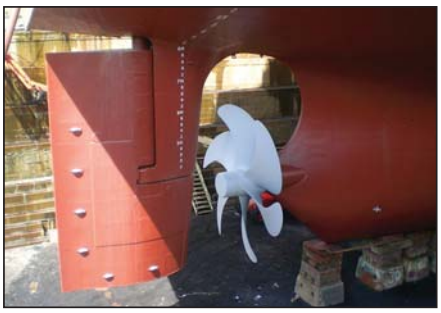
Whenever lasting protection is needed for a ship, Ecospeed offers the best solution. Whether it entails the underwater hull of a vessel or any other part of the ship, applying this coating system will make sure you will not have to worry about repainting. This will save you time, money and a lot of irritation. ■

LASTING PROTECTION









Ecoshield gives a very thorough and lasting defense against cavitation and corrosion damage for a ship hull's entire service life.

The coating equally provides the rudder with an impenetrable protective layer while its flexibility enables absorption of the forces that are produced by cavitation. This prevents the damage normally caused by this phenomenon.

Without proper protection against cavitation and the resulting erosion and corrosion damage, the financial consequences can be severe.

By removing the existing paint layers and applying Ecoshield on the rudder we can break the never ending cycle of painting, suffering damage, having to perform extensive repairs in drydock followed by a full repainting, again and again.

With an Ecoshield application no full repaint will be needed during drydocking. Ecoshield is guaranteed for ten years. At the most, minor touch-ups will be required.

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ECOSHIELD®

THE DIAMOND STANDARD IN STEEL PROTECTION

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

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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 RRS Sir David Attenborough *is one of the vessels that had its ice belt and underwater hull protected with Ecospeed. Photo credit: Jon Payne.*

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

GearConsult appointed agent for Hydrex and Subsea Industries in Norway

Hydrex and Subsea Industries have a new representative agent in Norway. GearConsult AS will represent and support Hydrex services and Subsea Industries products throughout the country.

Mr. Nyquist and Mr. Langberg of GearConsult together with Ms. Slight and Hydrex/Subsea Industries CEO Mr. Boud Van Rompay.

Ms. Tamara Slight, External Relations Executive for Subsea Industries and Hydrex commented on the appointment: "We are proud to welcome GearConsult to our expanding network of agents. The Norwegian market is very important to us, particularly since Ecospeed is the most durable and overall best coating available. A non-toxic coating system is vital in sensitive waters such as the coastlines or the fjords. GearConsult's experience and our ability to deliver in this field will help Norwegian owners and operators to save money on fuel while also protecting the environment."

Mr. Ludvig Nyquist, CEO and manager for GearConsult and Ms. Tamara Slight, External Relations Executive for Subsea Industries and Hydrex during the official signing of the agreement.

GearConsult AS represents and promotes the products and services of their principals in the Norwegian market. Traditionally they have had a focus on rotating equipment in the marine market, but over the recent years they have gradually shifted to representing companies that offer green solutions and products. These include hybrid propulsion systems, wave energy recovery and thermal energy recovery systems. The environmentally safe products and services of Subsea Industries and Hydrex fit in perfectly with this vision.

Hydrex is renowned for bringing drydock-like conditions to ships and offshore units. This helps owners to extend their vessels' drydock interval and eliminates the loss of time and production brought about by drydocking. Using the mobdock concept (mobile mini drydock), Hydrex diver/technicians can perform permanent repairs to all parts of the underwater ship propulsion system, as well as steel work or crack repairs in drydock-like conditions.

Subsea Industries is a pioneer in the development of hard hull coating systems and hull and propeller cleaning systems. In 2002 a long-lasting, non-toxic method of protecting ship hulls was introduced into the market. In 2013, after more than 10 years of strenuous testing, Ecoshield was launched for permanent protection against cavitation damage for rudders. In 2014 Ecolock was introduced. This coating system is designed to protect offshore vessels for decades without the need for drydocking. The latest members of the family are Ecofix, a superior, tested and proven filler and Ecolast, a UV resistant coating offering the full corrosion and abrasion protection Subsea Industries coatings are known for. ■

Company details can be found at www.subind.net, www.hydrex.be and www.gearconsult.no

For more information, please contact:
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GEARConsult AS

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






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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