



CORROSION PROTECTION AND SHIP HULL PERFORMANCE



The key to ending corrosion and improving performance in ships

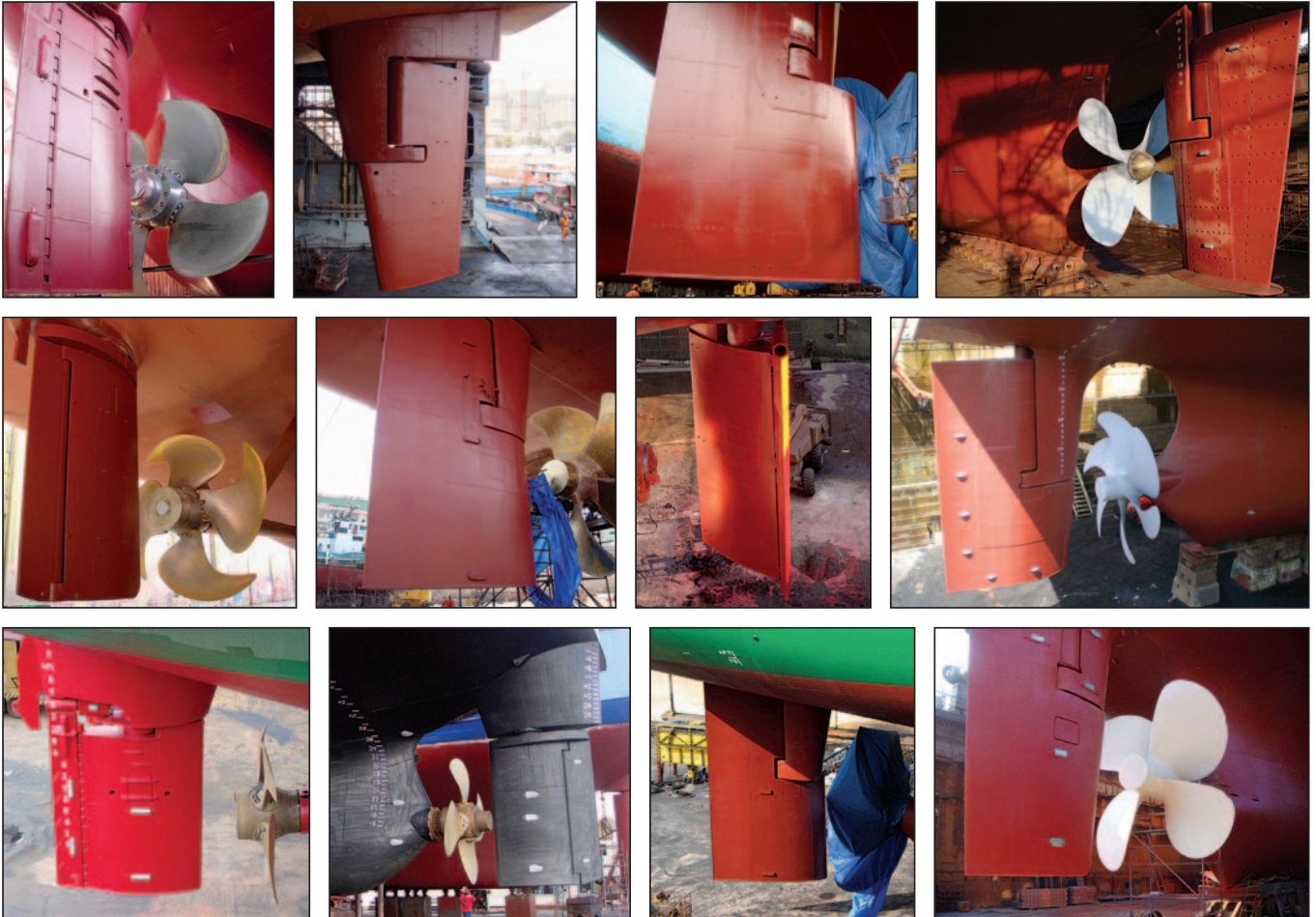
Boud Van Rompay

Fourth Edition



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SAY GOODBYE TO CAVITATION DAMAGE



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 dry-dock 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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Corrosion Handbook expanded and updated



The *Corrosion Handbook for Shipowners and Operators – The use of special coatings to protect ships from corrosion* has grown and become *Corrosion Protection and Ship Hull Performance – The key to ending corrosion and improving performance in ships*.

What's new?

The old and new titles say it all. What began as a practical manual devoted entirely to the protection of ships from corrosion by the use of special coatings, has been expanded to also embrace improving ship hull performance through the use of the correct hull coating and its proper maintenance.

The original *Corrosion Handbook* has proved very popular. We have had thousands of requests for the book and in fact ran out of copies. Because we had to reprint, we decided to overhaul the content and add to it our knowledge of and success in the field of ship hull performance through coatings and coating maintenance. This is quite extensive.

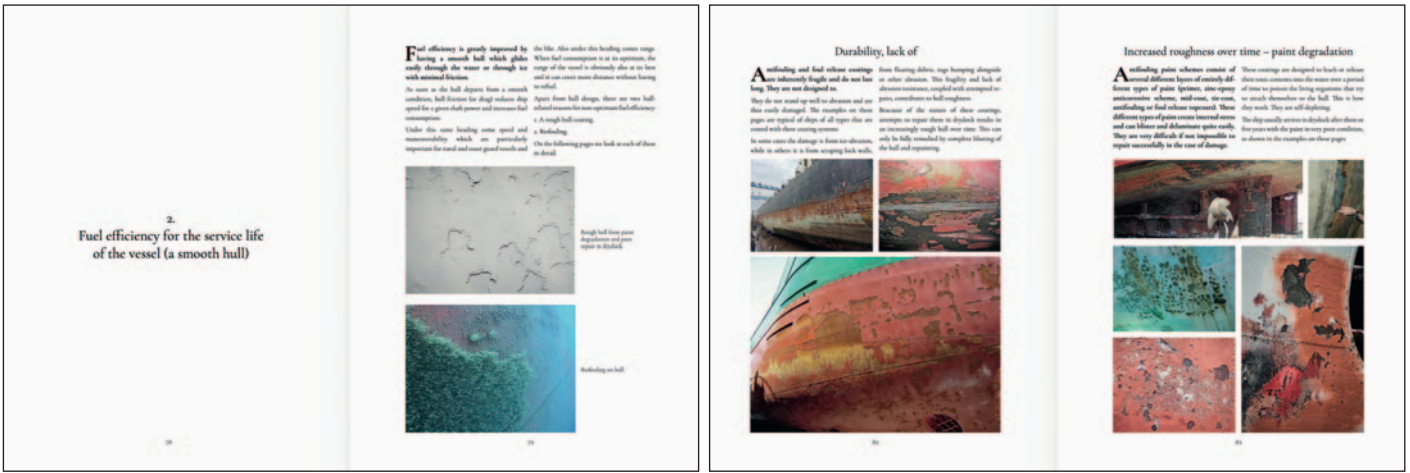
Ship hull performance system

In the late 1990s, we developed a performance-based coating system which has several properties that are unique in the industry:

The coating

1. is applied to the hull and running gear once and lasts the life of the ship.
2. is completely non-toxic to the marine environment.
3. can be cleaned and any degree of fouling can be removed in or out of the water without any harm to the coating or to the marine environment.

In order to describe this coating system and its advantages, accompanied by case studies and comparisons to other hull coatings, an entire section has been added to the book: PART II COATING SYSTEMS: SHIP HULL PROTECTION AND PERFORMANCE.



This new part of the book goes into details of the problems that a ship hull coating system must solve and offers tried and tested solutions to these problems.

The problem

The effects of a rough ship hull on the ship's speed, fuel efficiency and maneuverability have long been known. Various studies have been carried out by competent scientists and engineers and the effects of a rough hull coating and marine fouling have been quantified and described. As discussed in the book, hull friction can be greatly increased by rough paint and/or biofouling.

What has been lacking is a solution to these problems which is not harmful to the marine environment. For a while, TBT was used to prevent fouling. It was very effective as a means of keeping the hull smooth. Unfortunately, it also was very effective in poisoning, maiming, causing sex changes in and killing marine life far and wide that had nothing to do with the ship's hull or its efficiency. It was eventually banned but its destructive effects are still with us today.

When TBT was banned, the ship hull coatings industry developed alterna-

tives which work on the same principle but are considered less deadly in their effects on non-target species. Copper, zinc and other metals, combined with a cocktail of biocides were sanctioned by the authorities and are in widespread use. An alternative system based on silicone was also developed, designed to create a slippery surface that fouling would not attach to or, if it did, would easily be washed off. Unfortunately this alternative system was often also quite toxic to the marine environment, as well as being soft and easily damaged. Both these solutions have major drawbacks and are certainly not fully effective. Might they be based on an entirely wrong premise?

The solution

Subsea Industries introduced a solution to the problem which is based on an entirely different basic principle. If you own a car and you want it to be clean, you clean it! The paint has to be of a type which will not be damaged by the cleaning. And you need to be willing to put in the time and effort required to clean the car.

So with ship hull performance. If you want a clean, smooth hull, rather than a chemical solution, the simpler approach is to clean the hull.

CORROSION PROTECTION and SHIP HULL PERFORMANCE gives a detailed breakdown of the system along with case studies of successful application.

Request a free copy of the book

As with the *CORROSION HANDBOOK, CORROSION PROTECTION and SHIP HULL PERFORMANCE* is available on request at no charge to you. If you would like a copy, email us with your full name and postal address as well as your company or organization and your position. A digital version is also available. We are keen to get the book into the hands of those who are in a position to take advantage of this technology. If you have one of the earlier editions of the Corrosion Handbook and would like the updated and expanded book, write to us to request it.

You can reach us by email at corrosion@subind.net

We look forward to getting the new, expanded and updated *CORROSION PROTECTION and SHIP HULL PERFORMANCE* book into your hands. ■

The future of hull protection: durable, non-toxic coatings from Subsea Industries

Subsea Industries' coating systems have earned a strong reputation throughout the maritime industry because they combine long-term protection, environmental responsibility, and operational efficiency in a way that traditional hull coatings cannot match. Designed for shipowners and operators seeking durable, cost-effective solutions, the Ecospeed family of coatings offers benefits that go far beyond simple corrosion prevention.

One of the most appreciated advantages of these coatings is their ease and speed of application. Time in drydock is expensive, and every day a vessel is unavailable affects profitability. Ecospeed coatings are designed to simplify the application process, reducing downtime while still delivering a highly durable finish. Faster application means vessels can return to service more quickly



Our coatings are designed to simplify the application process, reducing downtime while still delivering a highly durable finish.



Our coatings provide lifelong protection. This is the hull of a workboat 10 years after Ecospeed was applied, with no repainting during that interval.

without compromising protection or performance.

Environmental performance is another major strength. Unlike many conventional antifouling coatings, the Ecospeed range is truly non-toxic. Traditional hull coatings often release harmful biocides into the sea, contributing to marine and sediment pollution. Subsea Industries developed its coatings specifically to eliminate this problem while still maintaining excellent fouling control. This allows shipowners to meet increasingly strict environmental



Marine environments are harsh, especially for vessels operating in ice, shallow waters, or areas with heavy debris. Our coatings offer exceptional resistance to mechanical damage.



Our coatings are a perfect fit for a wide range of projects, like the underwater structure of a floating pool in New York.



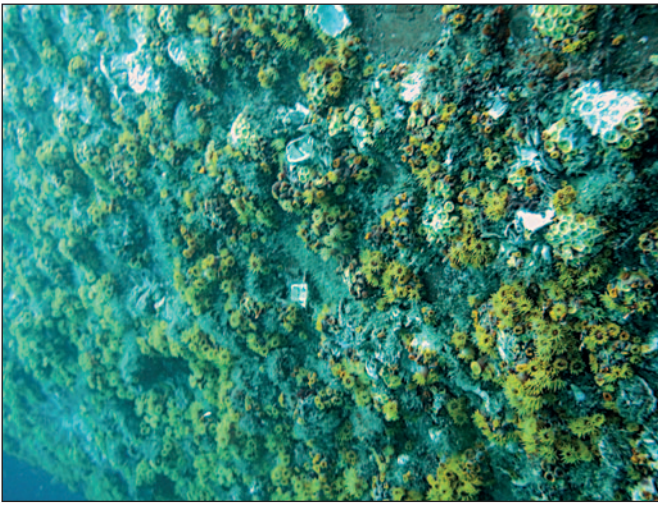
Unlike softer coatings that lose thickness during hull cleaning operations, our coatings can be cleaned repeatedly without damaging the coating itself.

regulations and sustainability goals without sacrificing operational efficiency.

Durability is at the core of the company's philosophy. Subsea Industries has long maintained that a coating should provide lifelong hull protection without the constant need for repainting. This approach significantly reduces maintenance costs over a vessel's lifetime. Instead of repeatedly removing and replacing deteriorated coatings during dry-dock periods, operators can rely on a long-lasting system that continues to perform year after year.

Abrasion resistance is another key benefit that distinguishes these coatings from conventional alternatives. Marine environments are harsh, especially for vessels operating in ice, shallow waters, or areas with heavy debris. The Ecospeed, Eco-shield, and Ecolock systems were developed with exceptional resistance to mechanical damage from the very beginning. This makes them particularly suitable for demanding applications where conventional coatings may quickly wear down or fail. Clear evidence of this is the fact that the same Ecospeed coating used on ships sailing in warm or temperate waters has been classified as an ice abrasion resistant coating PC (Polar Code) 1 – 7, meaning that a ship protected with Ecospeed can sail in any sea with any level of ice at any time. Its abrasion resistance has been proved over and over in very challenging situations.

Fuel efficiency is an increasingly important priority for the shipping industry, and hull condition plays a major role in vessel performance. When properly maintained and cleaned regularly, Ecospeed coatings can provide extremely high fuel



All coatings foul, but not all coatings are designed to be cleaned safely.



High pressure washing in drydock can also be done with the same result. No damage, no need to repair.

efficiency. A smoother hull surface reduces drag in the water, allowing vessels to consume less fuel and lower their emissions. Over time, the resulting savings can be substantial, especially for large fleets operating continuously around the globe.

The coatings are also exceptionally easy to clean. Unlike softer coatings that gradually lose thickness during hull cleaning operations, Ecospeed can be cleaned repeatedly without damaging the coating itself. Equally important, cleaning does not release

toxic substances into the surrounding water. This enables operators to maintain optimal hull performance through regular underwater cleaning while supporting environmentally responsible operations.

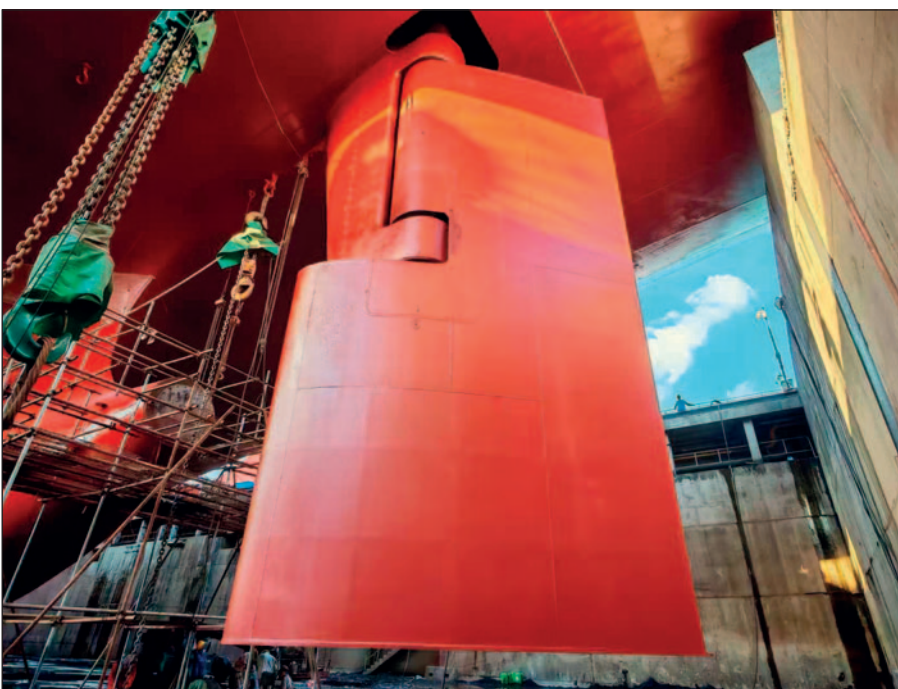
Repairability is another practical advantage. Damage to conventional coatings often results in complicated repairs that can affect the surrounding surface and reduce coating integrity. Subsea Industries coatings can be repaired smoothly and efficiently without compromising dura-

bility, longevity, or surface smoothness. This helps maintain consistent performance across the entire hull and minimizes long-term maintenance challenges.

The Ecospeed family also offers excellent chemical resistance. Marine vessels are regularly exposed to harsh operating conditions, corrosive substances, and challenging environments. The coatings have been tested under severe conditions and demonstrate strong resistance to chemical corrosion, providing reliable protection for steel, aluminum, and GRP surfaces.

Finally, one of the most innovative advantages is that these coatings eliminate the need for sacrificial anodes. By providing complete protection, the coating system removes the need for additional cathodic protection. This simplifies maintenance requirements and reduces associated costs.

Together, these benefits make Subsea Industries coatings a comprehensive solution for modern shipping companies seeking higher efficiency, lower maintenance costs, stronger environmental performance, and long-term vessel protection. ■



By providing complete protection, our coating systems remove the need for additional cathodic protection.

SUBSEA

PROTECTION AND PERFORMANCE



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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