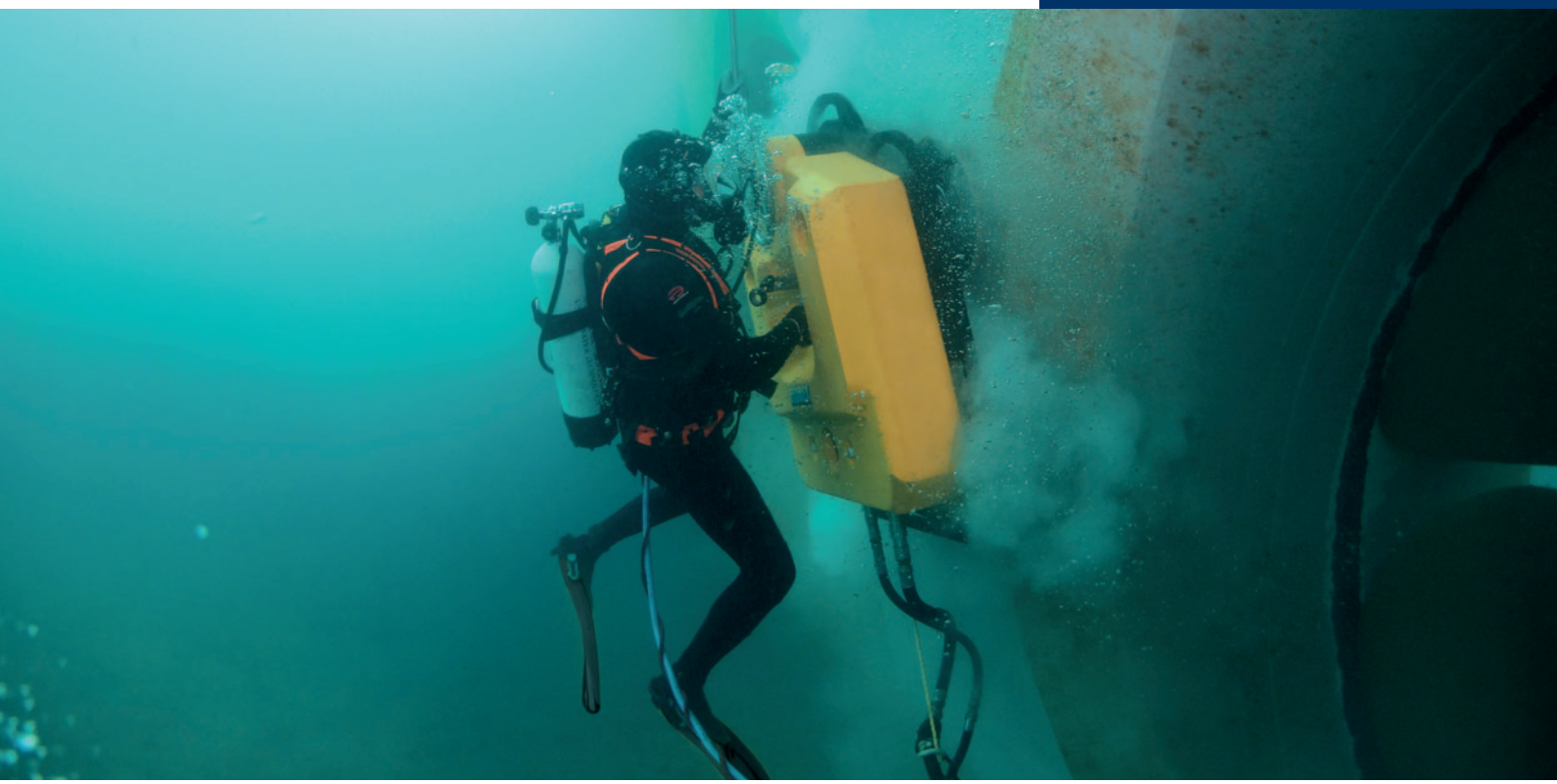
SUBSEA NEWS

PROTECTION AND PERFORMANCE

LETTER / 229



Comply with environmental regulations thanks to our performance technology

Corrosion damage very 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.

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ECOFIX®
CORROSION REPAIR

Comply with environmental regulations thanks to our performance technology

Our underwater coating systems offer a TBT-free, copper-free and biocide-free solution for the protection of your vessel. Our protection and performance systems are the Best Available Technology for reduction of fuel consumption, GHG and other emissions through improved hull hydrodynamics and fouling control.

Groupe Océan's vessels operate in ecologically sensitive areas, so they need a hull coating system that protects both the vessel and the marine environment.

100% non-toxic

Stringent independent tests were carried out in the Netherlands to provide scientific data and to authenticate the non-toxicity of our coatings. Similar testing was conducted in Canada with the same results. This research proved that the coatings are 100% non-toxic and that there is no negative effect on the water quality or the marine environment at any point of their use. The massive amounts of VOC and zinc anode emission associated with conventional coating systems are reduced to almost zero.

Our coating systems are applied in only two identical homogeneous layers.

Getting rid of repeated environmental hazards

All our systems require only two coats of 500 µm each applied to bare steel, aluminum or glass-reinforced plastic (GRP). No primer, no midcoat, no tiecoat, no topcoat are needed; just two layers forming a homogeneous protective coating. They are applied once in the life of the vessel which is a major advantage compared with other coatings. If you apply three to four layers of antifouling coating and are re-doing the above every three to five years, you inevitably come to a point where there are too many layers on the ship's hull. This will degrade the quality of the coating even more easily and rapidly because of the internal stresses being built up, resulting in a required full reblast. A big environmental hazard is created each time. Repeat applications mean repeated VOCs and repeated debris when the conventional coatings are removed.

Stringent independent tests were carried out to authenticate the non-toxicity of our coatings.

The Ecospeed coated Ice-Class 1A, 65m tug Antarctic *carries out anchor handling and oil recovery duties in the ecologically sensitive Arctic in compliance with the IMO Polar Code requirements.*

Underwater maintenance can be carried out whenever needed without causing harm to the environment.

Easy and environmentally friendly fouling removal: solving the NIS problem

Over the last several years there have been concerns that non-indigenous species (NIS) are transported by fouled hulls even more than in ballast water. Once a hull becomes heavily fouled there is an increased risk of transporting NIS. This needs to be remedied either by out-of-water removal or by underwater cleaning. In this respect, underwater cleaning has come under some scrutiny out of fear that viable NIS are released and spread by the operation, rather than contained and disposed of. Several ports and countries have banned underwater cleaning out of concerns of pulse release of

This survey vessel is used for delicate ecological research and for this reason the environmental benefits Ecospeed offers are very important.


Our Ecoshield coating is designed to protect underwater running gear against cavitation and corrosion damage.

biocides and an increased risk of transferring NIS.

Another important outcome of the independent test was the submission of the results to port authorities and environmental agencies worldwide in order to allow the underwater treatment of our coating systems. As a result, several economically important ports have made an exception to the ban and this only for our coatings. These ports recognize the negative impact of biocidal paints and want to support environmentally safe solutions.

Underwater hull maintenance is carried out with specially designed underwater hull cleaning tools that simultaneously clean and optimize the smoothness of our coatings. This can be repeated whenever needed during the vessel's lifespan without causing damage to the coating's surface. It even significantly improves their hydrodynamic characteristics, keeping the surface hydrodynamically smooth and bringing about a major saving in fuel.

Fuel savings reduce ecological impact tremendously

The emission of greenhouse gases (GHG) such as carbon dioxide (CO2) and nitrous oxides (NOx) as well as pollutants such as sulfur oxides (SOx) and particulate matter (PM) into the earth's atmosphere by the burning of fossil fuels to drive ships is of increasing concern internationally.

Underwater ship hulls are subject to biofouling, as micro-organisms and vegetable and animal matter naturally attach to a ship's hull. A fouled hull carries with it a fuel penalty. The worse the fouling, the slower the ship will sail at a given RPM. More power will be required to keep

Our coating systems can help owners of all types of vessels achieve their ecological goals.

the ship sailing at a given speed. This means higher fuel consumption. Depending on the degree of fouling, this can be as much as 85% more. Higher fuel consumption results in more greenhouse gases and other emissions which pollute the earth's atmosphere.

On a global scale the potential for the reduction in fuel consumption and greenhouse gas emissions is enormous. The annual fuel consumption by the world fleet is estimated at 350 million tonnes. This implies an annual CO2 output of approximately 850 million - 1.1 billion tonnes. If 80% of the world fleet would switch from biocidal antifoulings to our coating systems, this would save an estimated 28.5 million tonnes in annual fuel consumption and 90 million tonnes in annual CO2 output.

Summary

We offer a TBT-free, copper-free and biocide-free solution. No toxic substances are released at any stage of its use. The surface texture improves with repeated underwater hull maintenance. Fuel consumption as well as GHG, VOC and zinc anode emission is thereby reduced. This makes our coating systems the Best Available Technology (BAT) for companies that take their environmental responsibility seriously. ■

Contact us for more information or an estimate for our coating systems for your ships.
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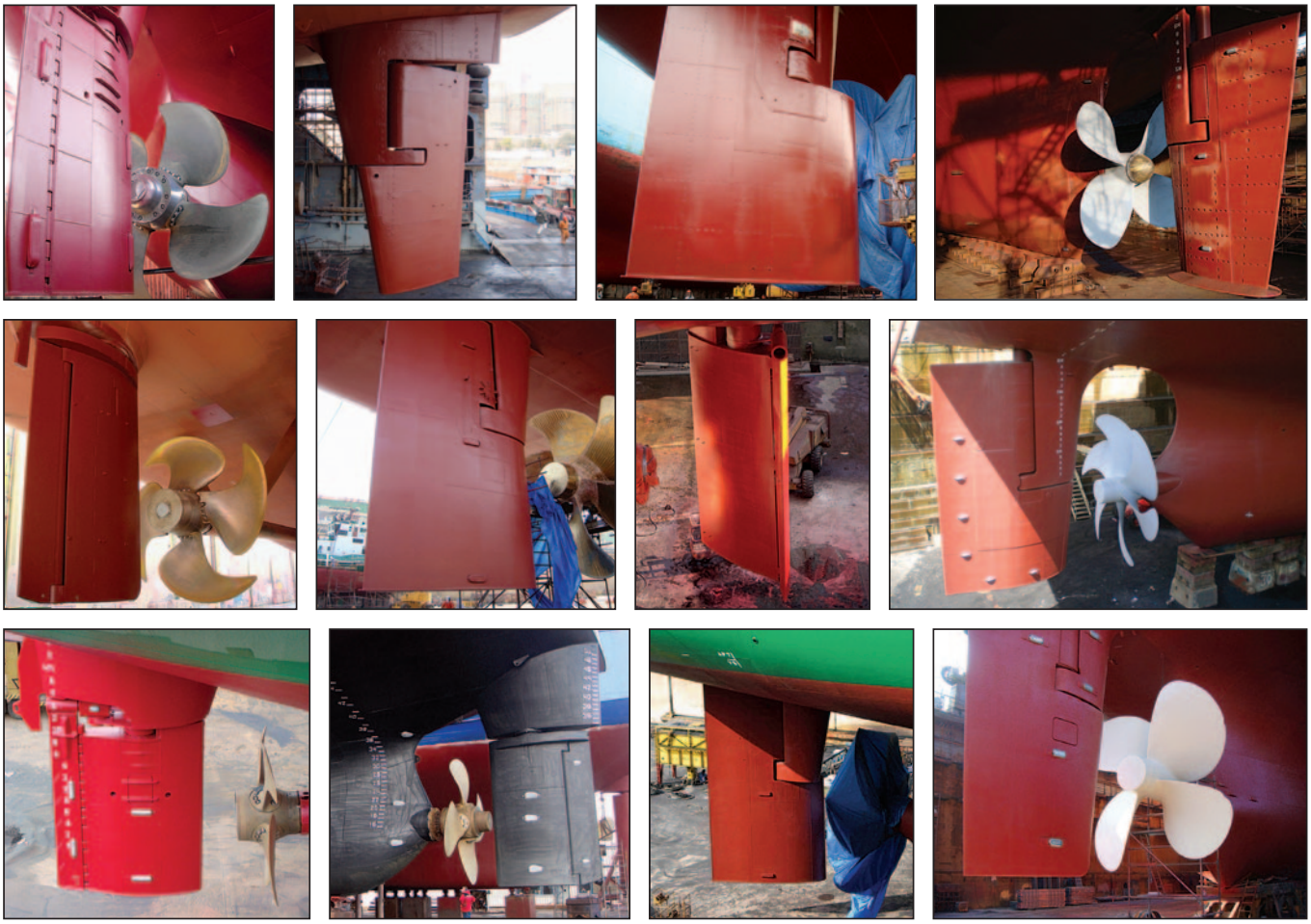
Several economically important ports have made an exception to the ban on underwater cleaning and this only for our coatings.

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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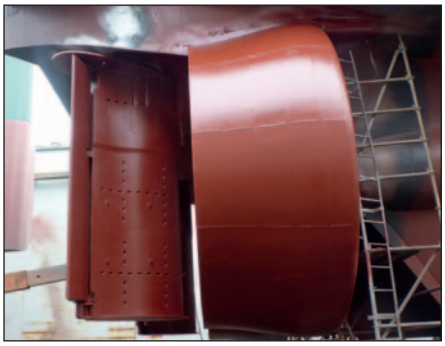
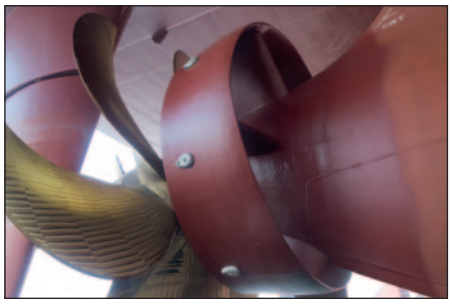
ECOSHIELD®
ULTIMATE PROTECTION

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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