

ECOSPEED®

SHIP HULL PERFORMANCE TECHNOLOGY

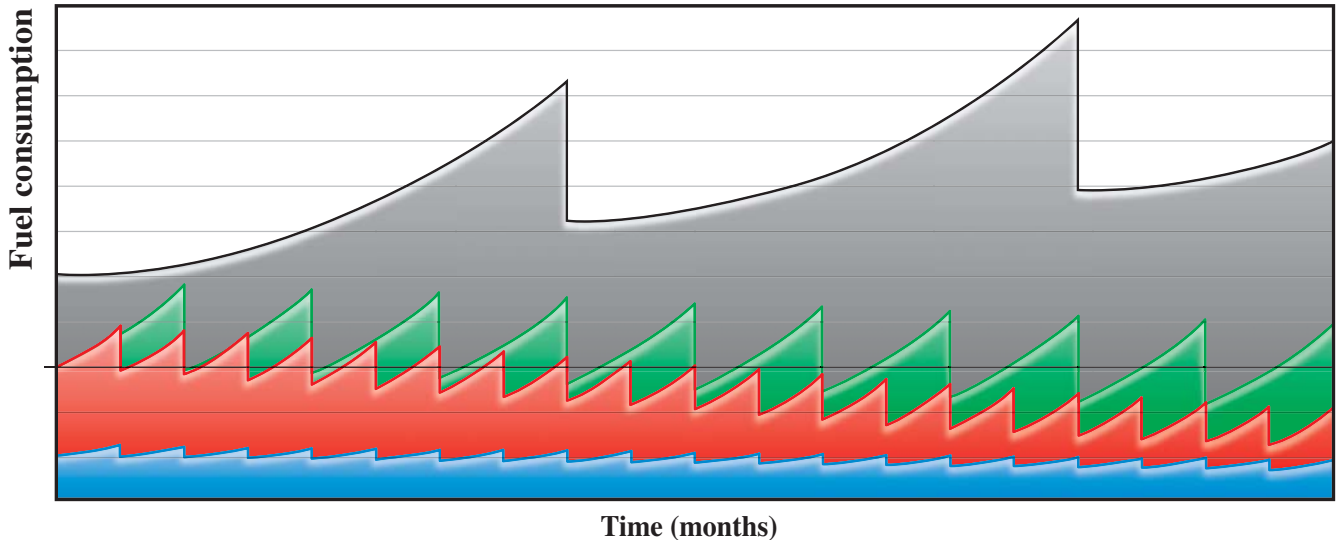
Magazine



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Millions in fuel savings

Development of additional fuel consumption over time



- Ecospeed with 2 cleanings per year
- Ecospeed with 4 cleanings per year
- Ecospeed with optimum cleaning intervals
- Active antifouling paints

Most ships sail with a chartering contract that includes a penalty clause if fixed distance/fuel consumption ratios are not met. However, this is unpredictable with regular paint systems and will also worsen over the years. The ship becomes more expensive and profits are reduced.

The protective Ecospeed ship hull performance technology however

not only keeps the ship's performance stable but even improves it with repeated underwater maintenance. The coating is designed to be cleaned routinely with specially designed underwater hull cleaning tools. These simultaneously clean and improve the smoothness of the paint surface. This avoids penalties as well as producing enormous fuel savings.

One major cruise line has been quo-

ted 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.

Contact us to find out how Ecospeed can help you achieve major fuel savings.

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Cost-effective fouling control

There is currently no hull coating available – biocidal or hard – which will not foul. Any level of fouling, including biofilm or slime, carries with it a considerable fuel penalty. With current fuel prices, this penalty is too expensive to ignore. The only way to remove this fouling is to clean it off. Like it or not, ship hull cleaning is an essential part of operating a vessel or a fleet efficiently and economically.

If a ship is to sail clean then the cleaning must be 100%. It takes longer and therefore costs more. However, this extra time and money is more than recovered since the ship operates with a clean hull, thus benefiting from the maximum fuel savings. It is also the only safe way to prevent the spread of non-indigenous species (NIS) and thus avoid falling “foul” of the increasingly tight regulations on this subject.

In most circumstances, the best and most viable approach is to clean the ship 100% and to do so regularly and always before sailing if the ship has been stationary for a long enough period to have become fouled.

And ship hulls must be protected with a system which lends itself to fast, effective underwater cleaning without risk of damage to the coating and without posing any kind of hazard to the environment.

The benefits of underwater cleaning on Ecospeed

1. Ecospeed improves with each underwater treatment



Fouling can be removed in drydock with high pressure tools or underwater while improving the coating.

One of the many unique factors of this underwater hull coating system is that with repeated underwater hull cleaning, the coating’s surface aspect does not degrade but gradually improves. This procedure is made easy by the coating’s technical properties. Cleaning can be carried out whenever needed, at any point in its lifespan, without causing damage.

2. Long lay-up periods have no effect on the condition of the Ecospeed coating

Our coatings are suited for ships which have a stationary period because an impermeable and impenetrable barrier is created during application. This gives the coatings their excellent and durable anti-corrosive properties and protects the underwater hull against mechanical damage. Despite the aggressive nature of certain types of fouling, no rust or damage to the steel will be present on the underwater hull of the



Fouling on Ecospeed can be removed fast and easy.

vessel after cleaning. The hard fouling is unable to penetrate or damage the glassflake coating.

3. TBT-free, copper-free, biocide-free and silicone oil free solution

In 2008, stringent tests were carried out to provide scientific data and to authenticate the non-toxicity of the



Navy vessels benefit greatly from the fact that Ecospeed can always be restored to its optimum condition even after lengthy lay-up periods.

fouling and the associated increase in fuel consumption. In other words, regular cleaning prevents macrofouling from building up and at the same time presents an opportunity to inspect so-called niche areas. Secondly, Ecospeed is a very durable coating that withstands abrasive cleaning for which very effective specialized tools have been developed. As a result, many of the fouling organisms will be destroyed during cleaning. As long as only microfouling or locally acquired macrofouling is cleaned off the hull and niche areas, the risk of translocation of NIS via hull fouling is minimal. Standard use of Ecospeed is the key to resolving the hull-borne NIS issue.

Ecospeed hull performance technology. This research proved that the coating is 100% non-toxic and that there is no negative effect on the water quality or the marine environment at any point of its application or use.

4. The solution to the NIS problem

The underwater cleaning of Ecospeed can be regarded as a safe measure that prevents, rather than remedies, the spread of NIS. Firstly, Ecospeed can be cleaned on a regular basis without damaging the coating's surface. The cleaning interval is optimized to minimize



Ecospeed is 100% non-toxic.



Independent tests were carried out in 2008, proving that Ecospeed is 100% toxin-free.



Regular underwater treatment of Ecospeed is at the moment a Best Available Technology to minimize the risk of transferring non-indigenous marine species.

5. Underwater cleanings on Eco-speed allowed

After the submission of the experimental results of above-mentioned tests to port authorities and environmental agencies worldwide, several major ports have already overturned the existing general ban on underwater hull cleaning, specifically making an exception for vessels coated with Ecospeed.

6. Specially designed equipment

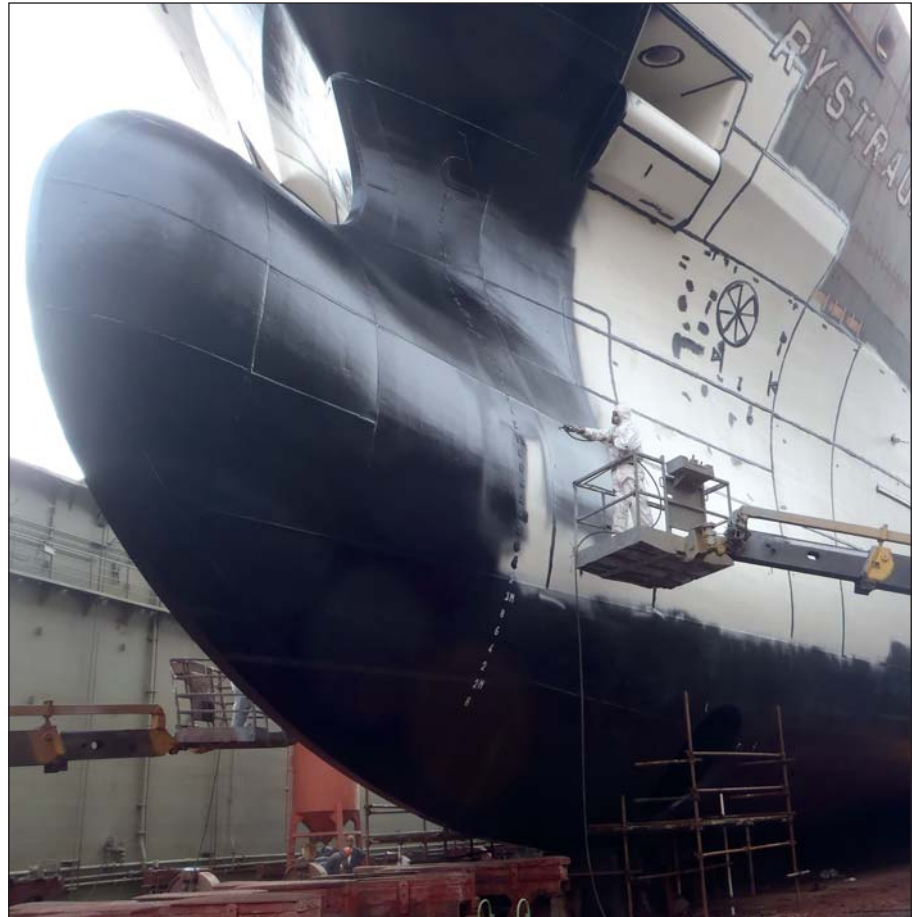
Underwater maintenance of Ecospeed is carried out with specially designed underwater hull cleaning tools that simultaneously remove all fouling and optimize the smoothness of the paint surface. A complete line of equipment was designed in-house to allow divers to clean the flat areas as well as the harder to reach parts of the hull without damaging the coating.

7. Fewer and shorter drydockings

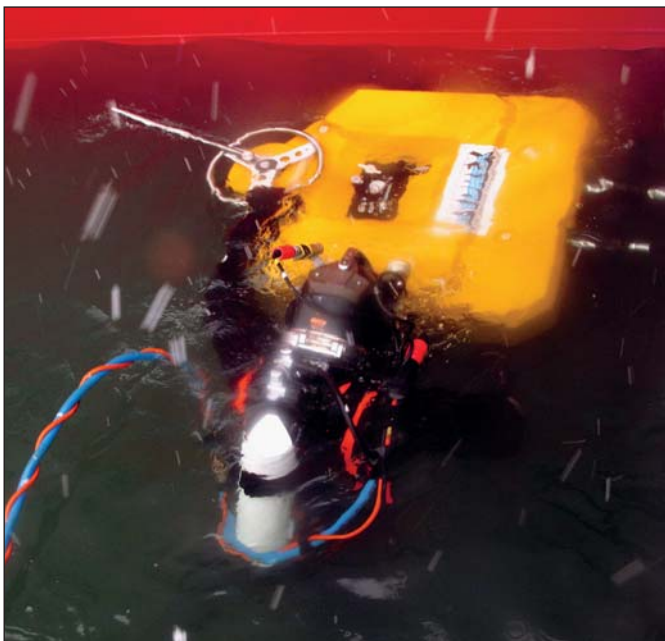
Over the last couple of years there has been a trend of extending the maximum drydock interval from five to seven and a half years or

even ten years. Several large classification societies already allow this extension, but only if a stringent set of rules is followed. One of the requirements is the execution of a very strict preventative or semi-preventative underwater maintenance

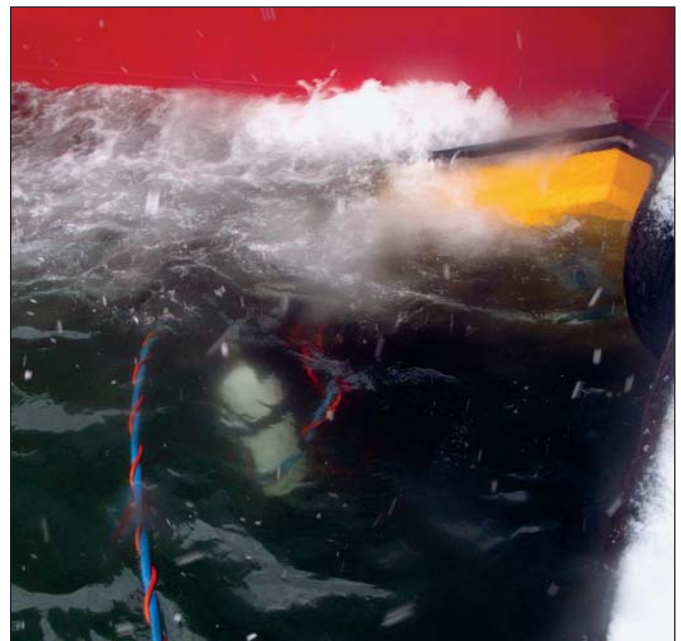
plan. Ecospeed's qualities make the coating ideally suited for such a regime. Regular underwater cleaning, removing any marine fouling at a very early stage, will maintain and improve the ideal surface characteristics. Some offshore vessels are



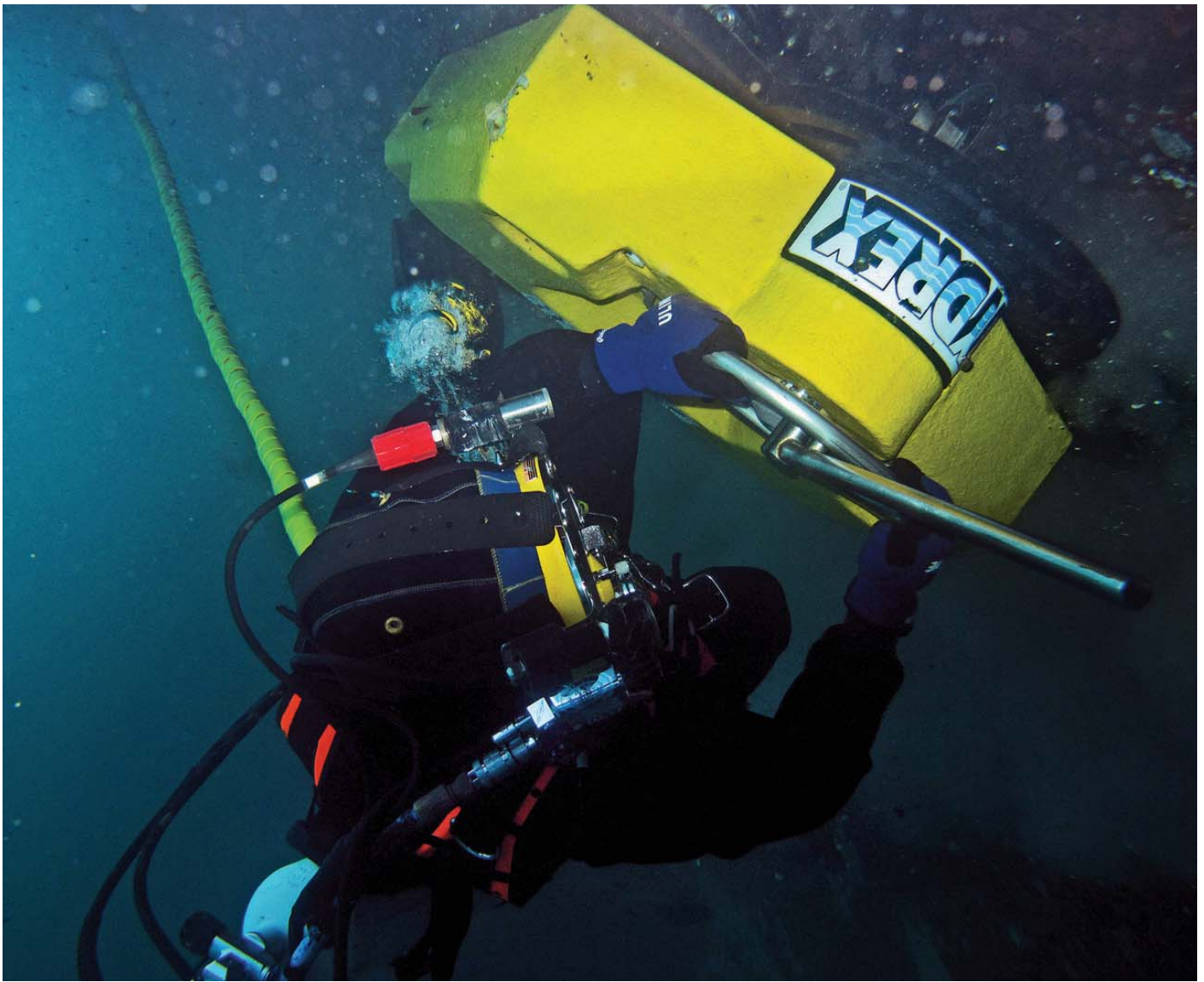
An Ecospeed application is adapted to the shipyard's schedule and not the other way around.



Diver getting ready...



for first underwater hull cleaning in Rotterdam since 1993.



Ecospeed underwater maintenance is carried out with specially designed tools.

expected to stay out of drydock for 20 years and a hard, inert long-lasting coating such as Ecospeed's sister coating Ecolock is the only way to make this possible. The biggest barriers to ships staying out of drydock for 7.5 or more years are dealing with biofouling and maintaining hull coating integrity. Ecospeed allows ship owners and operators to overcome both these barriers.

Summary

Ecospeed can be cleaned underwater without risk of chemical pollution to the environment or of damage to the coating. The coating can be

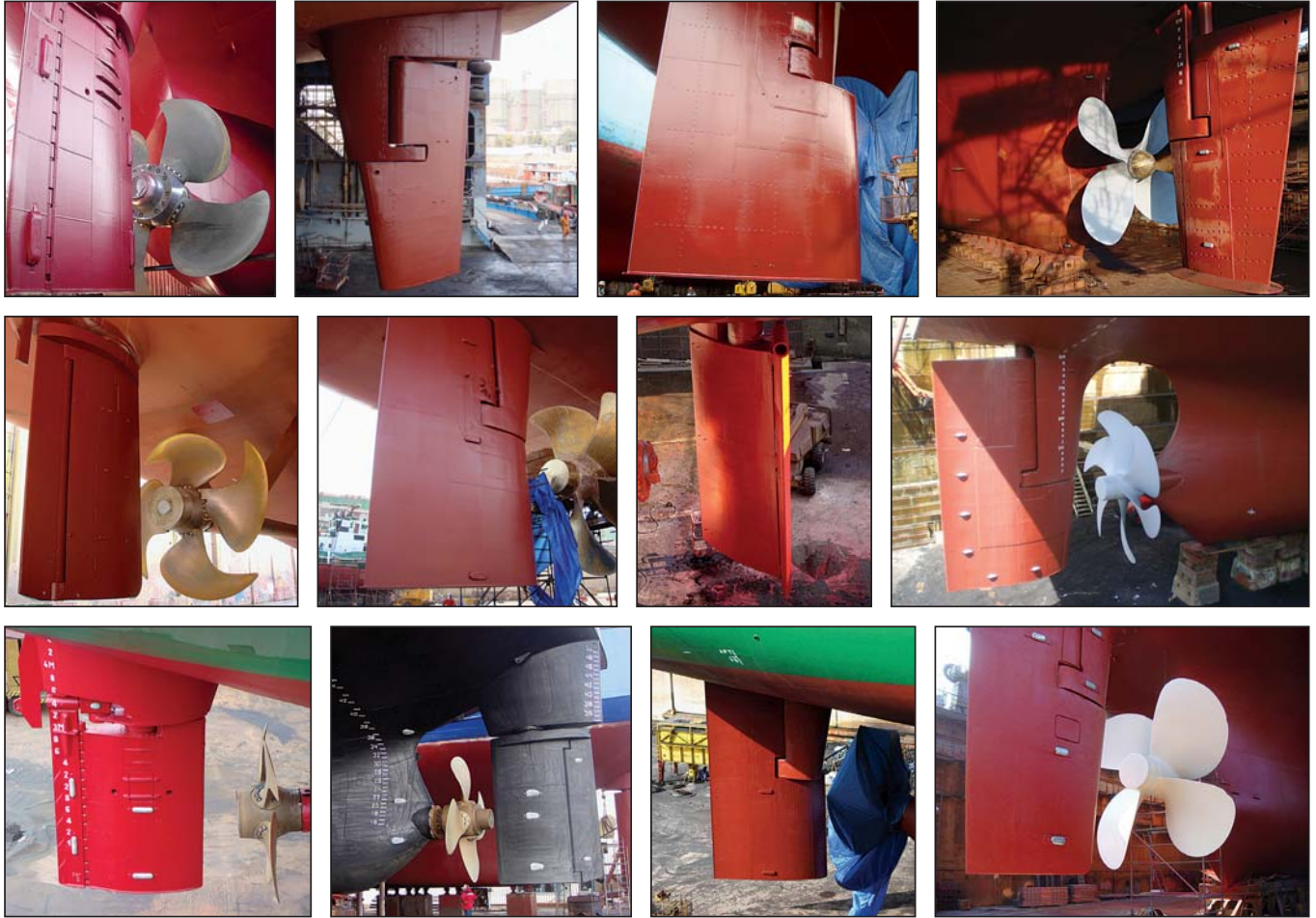
cleaned aggressively and rapidly and will only improve in smoothness with each cleaning. Underwater maintenance of Ecospeed can be regarded as a safe measure that prevents the spread of NIS. For these reasons several economically important ports have already overturned the existing general ban on underwater hull cleaning, specifically making an exception for vessels coated with Ecospeed.

Ecospeed's qualities also make the coating ideally suited for the very strict preventative underwater maintenance plan that is part of the requirements to extend a vessel's drydock interval to 7.5 years.

Underwater maintenance of Ecospeed is carried out with in-house designed underwater hull cleaning equipment by specially trained Hydrex diver/technicians. This allows them to clean the flat areas as well as the harder to reach parts of the hull without damaging the coating. ■

ECOSPEED®
SHIP HULL PERFORMANCE TECHNOLOGY

The only coating that offers lasting rudder 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.

ECOSHIELD®

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Ecospeed for cruise vessels

Superintendents and others who have to deal with the underwater hull coating on cruise ships have complained of a number of issues with both biocidal antifouling coatings and foul-release coatings.

The issues come down to:

1. Toxic hulls – not environmentally sustainable, subject to criticism from ports and clients.
2. Considerable marine fouling which increases fuel consumption but also makes the ship look unattractive.
3. Coatings damaged and rapidly degrading, becoming rougher, increasing fuel consumption and needing much repair or replacement in drydock.
4. Extended time needed in drydock to repair or replace paint, hence loss of income.
5. In-water cleaning needed but becoming increasingly difficult to carry out, fewer ports permitting it due to the toxic nature of the coatings and to the threat of spreading invasive species.
6. Corrosion of hulls and underwater gear on high value ships (\$500 million or more).

These factors all add up to a decrease in profits, an increase in maintenance, and an unwelcome impact on the environment and the cruise line's PR. And many of these issues are actually getting worse, not better.

In comparison, cruise line customers who have switched to Ecospeed are experiencing *none of these problems*.



Cruise vessel's toxic SPC coating showing paint degradation.



Ecospeed is non-toxic. It is applied once and can be cleaned as often as needed without restrictions and without damage to the coating. In fact it becomes smoother with cleaning. 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.

Drydock time is significantly reduced rather than increased. In fact one Ecospeed customer recently specifically noted that he was able to get his ships out of drydock several days sooner than usual due to the Ecospeed coating, saving millions.



Routine in-water cleaning keeps this cruise ship's Ecospeed coated hull clean. In fact Ecospeed gets a little smoother with each cleaning. And the cruise line is saving at least 10% on fuel costs (compared to when it was using TBT).



This cruise ship came out of the water just like this. The Ecospeed coating is 5 ½ years old. It has had absolutely minimal touch-ups, no repair, no replacement. It has undergone routine in-water cleaning. The ship gained two knots over trial speeds when the coating was changed to Ecospeed.



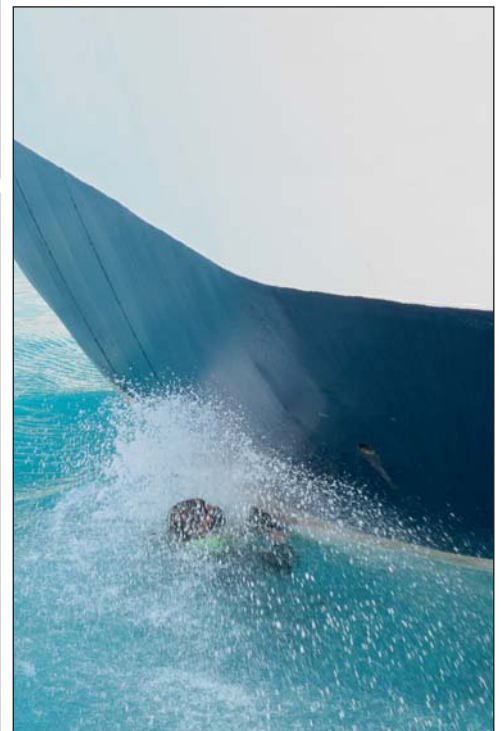
The coating at most requires minor touch-ups during routine drydocking and this can be accomplished very rapidly. Any repairs blend in perfectly and do not make the hull rough.

The coating is very strong and resilient and is probably the best possible protection against corrosion available today. Applied to rudders and underwater gear, Ecospeed's tougher sidekick Ecoshield even puts an end to rudder cavitation damage.

If you are experiencing similar problems with your cruise ships' hull coatings, please let us know by contacting one of our offices. We can arrange a time to talk or meet to give you more information on Ecospeed and how it will put an end to these problems. ■



ECOSPEED®
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Because Ecospeed is so easy to clean, the waterline of cruise vessels will always look pristine. We produce the best looking waterlines.

Ecospeed is looking for sales staff

We are hiring sales staff to join the headquarters in Antwerp and our office in Clearwater, in the Tampa Bay Area.

After initial training you will be responsible for prospecting and sales of our products, with the correct follow-up and data management. You will visit new prospects/potential customers, alone or together with a local agent. You will attend conferences and exhibitions, both at home and abroad.

International experience and/or experience in the maritime sector is a plus.



Send résumé and application letter to Personnel & Communications Manager - Hydrex n.v., Haven 29, 2030 Antwerpen or admin.personnel@hydrex.be.

Applications for the Clearwater office should be sent directly to Personnel & Communications Manager - Hydrex LLC, 604 Druid Rd E, Clearwater, FL 33756 or jobs@hydrex.us.

ECOSPEED®
SHIP HULL PERFORMANCE TECHNOLOGY

The only hull performance system that gives your engine a break

Ecospeed provides your vessel with long-term protection and dramatically improves the ship's performance.

An impermeable and extremely tough coating is combined with an underwater cleaning system. This keeps the hull roughness at an optimum level and results in a major saving in fuel.

Ecospeed gives a very thorough and lasting defense against cavitation and corrosion damage for a ship hull's entire service life. The coating comes with a ten year guarantee. No repaint will be needed during future drydockings.



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Save millions in drydock expenses and off-hire time



Hull of cruise ship after 5 years with Ecospeed coating with no replacement or major repair. This is the state of the hull when the ship came out of the water, without any cleaning or touch-up in drydock.

When your hull coating never needs replacing or major repair, you can save a lot of money in drydock fees, off-hire time, materials and labor.

Most hull topcoats are designed to be replaced once or twice every five years. The full hull coating scheme has to be fully replaced every 10 - 15 years down to bare steel. Over that time period, the coating degrades and

becomes rougher until it's no longer worth trying to patch it up. And it costs you a fortune in fuel to compensate for the additional hull friction.

Imagine a coating that's guaranteed for 10 years and is expected to last 25 without replacement or major repair. A coating that gets smoother over time, not rougher.

Imagine coming into drydock after 3 or 5 years and finding that your hull coating only requires a few minor touch-ups and doesn't even need to be washed off.

Just think how much money you will save.

Call us today for a quote to convert your hull to Ecospeed or start off right, with Ecospeed, on a new build.

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