ECOSPEED®

SHIP HULL PERFORMANCE TECHNOLOGY

NEWS LETTER

Total Protection

The rudder of MV Elisabeth Russ before Ecospeed was applied in 2004, showing heavy cavitation damage.

The rudder of MV Elisabeth Russ in drydock in 2011. No further cavitation damage has occurred in the intervening 7 years.

Ships have been sailing for up to nine years (and counting) with Ecospeed without having to replace the coating on their rudders or having to opt for important and costly steel repairs.

Ecospeed can be applied on a rudder at a very low cost, especially compared with the large drydock costs. It will give a rudder supreme protection against cavitation and corrosion damage for the rest of the vessel's service life.

Ecospeed is a really fast and easy way of keeping a rudder's performance at maximum efficiency at all times.

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W&R Shipping finds Ecospeed® to be the best coating for its ice-going cargo fleet

When it comes to protecting the hulls of ice-going vessels, the glassflake reinforced surface treated composite (STC) Ecospeed® has proven to be remarkably durable, typically outperforming many specialized ice class paints. The fact that the coating is non-toxic is also particularly important for ice trading vessels where toxic AF coatings are rapidly scraped off and deposit their toxic ingredients in what are often particularly sensitive environments.

W&R general purpose vessel Crown Mary sailing in ice thick enough to walk on.

W&R Shipping converted its existing fleet to Ecospeed and specced Ecospeed as the coating for newbuilds ordered. Wim van Ecke explains why.

W&R Shipping

Based in Zwijndrecht, The Netherlands, W&R Shipping was founded in 2005, the result of a cooperation in the shipping business between Captain G.C. (Wim) van Eck and Mr. R.A. (Rob) Stornel, which dates from 1999. (The W is for Wim and the R is for Rob, hence W&R.) Captain Van Eck is the technical supervisor, while Mr. Stornel handles the in-office duties. Both their careers in shipping are longstanding, starting in 1969 for Mr. Stornel and in 1981 for Captain Van Eck.

W&R Shipping specializes in management of multipurpose vessels. Proof of their competence is reflected in the successful exploitation of their own fleet of six such ships:

MV *Anne-Dorte*
Box type tween-decker, 88 m LOA, Gross Tonnage 2622, ice class 1A. Built in 2011.

MV *Tina*
Box type flush tween-decker, 88 m LOA, 2622 GT, ice class 1A. Built in 2010 in Zhouyang, China.

MV *Crown Mary*
Box type flush tween-decker, 88 m LOA, 2622 GT, 163 TEU, ice class 1A. Built in 2010 in Zhouyang, China.

MV *Thea Marieke*
Box type single-decker, 82.5 m LOA, 2311 GT, 132 TEU, ice class 1A Built in 2001 in Eemshaven, The Netherlands.

W&R Shipping MV Thea Marieke.

W&R ships Crownbreeze and Tea Marieke in Rotterdam in the ice.

The state of the hull of the Crownbreeze prior to Ecospeed application in August 2007.

MV *Crownbreeze*
Box type single-decker, 88 m LOA, 2548 Gross Tonnage, 188 TEU, ice class 1A built in 1999 in Bergum, The Netherlands. 88 m LOA, 2548 Gross Tonnage, 188 TEU, ice class 1A.

MV *Monica*
Box type single-decker, 82 m LOA, 1994 GT, ice class 1B. Built 1989 in Foxhol, The Netherlands.

In addition to ship and fleet management, W&R Shipping BV also has hands-on experience and expertise in new builds of multipurpose vessels in China, partly on commission.

Trading in ice

Wim van Eck has spent most of his seafaring career as a captain, trading mainly in the North of Europe and the Baltic Sea. "Of course we always were confronted with the fact that in the winter time when you were sailing through the ice your paint was gone and so you had to do something about it in the summer time," he explains. "You had to drydock in order to repaint."

In 2007, Wim came across Ecospeed. "I saw it first on a German Interscan vessel which was in almost exactly the same situation as we are and had had the same problems we had," recalls Wim. Having read of the success Interscan was having with Ecospeed on similar vessels, also trading in Baltic and Northern European ice every winter, W&R decided to try Ecospeed themselves.

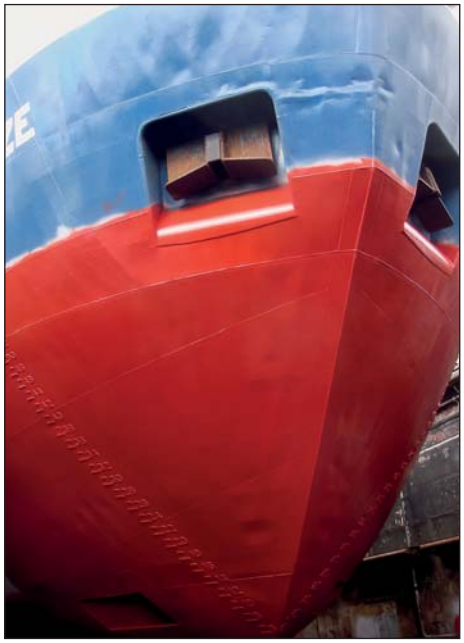
The first vessel to be converted to Ecospeed was the *Crownbreeze*. Like the other W&R vessels, the *Crownbreeze* previously had a high abrasive specialty ice coating. "I can't say that the earlier coating worked very well," says Wim. "When it was new it was not too bad, but of course you get a lot more chipping than with Ecospeed, so every docking you have to touch it up and it gets rougher."

The *Crownbreeze* came into service in December 1999 so by August 2007 it was time for her second intermediate survey – her third drydocking. "We knew that sooner or later we were going to have to do something, so we decided to go with Ecospeed." They removed what remained of the existing high abrasive coating and applied Ecospeed to the entire underwater hull and rudder.

The *Thea Marieke* followed in the wake of the *Crownbreeze* with an Ecospeed application in 2008. Those were the two where the original coating was replaced. Subsequently, the *Crown Mary* and the *Tina* both had Ecospeed applied at newbuild stage which is the ideal time to apply the coating. Wim explains that, from a preparation point of view, he found it easiest to apply Ecospeed to new steel. The required surface preparation is easier to accomplish at the shipyard in the construction stage than in drydock after the ship has been in service for some time. Proper preparation and application are vital to the success of the Ecospeed coating.

The only ship of the W&R fleet not currently coated with Ecospeed is the *Monica*, an older vessel which may be sold in the not-too-distant future.

W&R currently has two ships on the



Sandblasting (left) and Ecospeed painted hull (right), Crownbreeze, 2007.

assembly line in China. One already has Ecospeed. The other has another coating. Since it is a new coating already applied, Wim has not decided whether to remove the coating and apply Ecospeed immediately or sail with the existing coating for a few years until it is time to change it and then have Ecospeed applied.

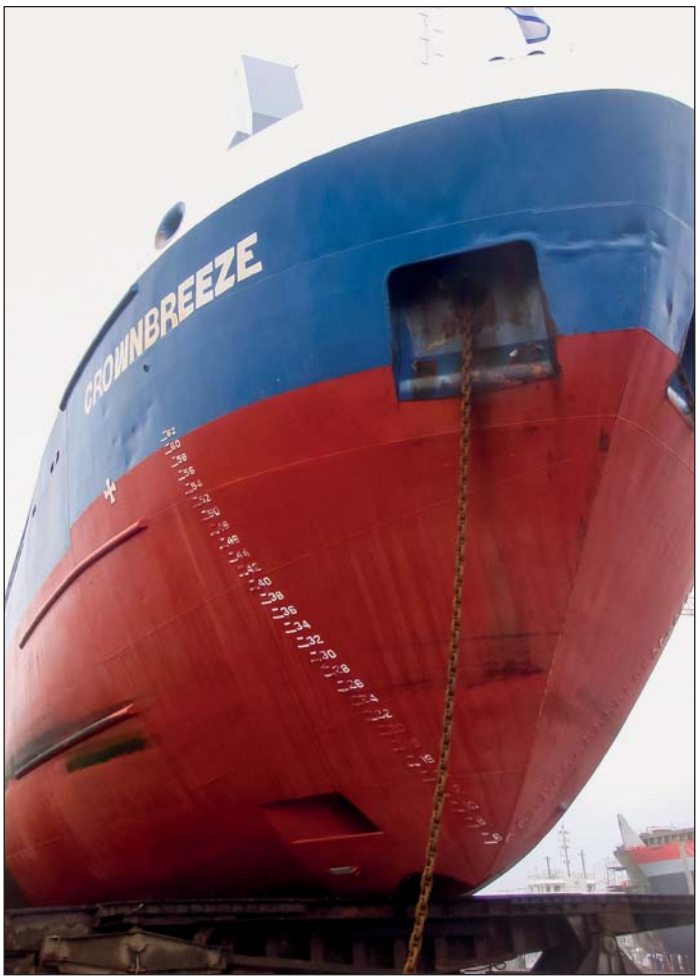
Minor touch-ups to the Crownbreeze in drydock in 2012 after five years in service after being coated with Ecospeed.

Results

The *Crown Mary* went to drydock in June 2012 after two and a half years' sailing in ice with Ecospeed. "There was some small mechanical damage but nothing really major," says Wim. "We didn't need to do anything with the hull paint in drydock."

The *Crownbreeze* was docked in 2009 and again in 2012, five years after the Ecospeed was applied. Nothing had been done with the paint in the 2009 drydocking.

Because of the different dock block positions, the 2012 drydocking was an excellent opportunity to coat the parts of the hull which were missed due to the dock block position when the Ecospeed was originally applied.



Crownbreeze in drydock in 2009 showing condition of paint after two years in ice.

"We touched up a total of about 90 sq. m. of the hull which has a total area of about 2,000 sq. m. 60-70% of that was the dock blocks and the remainder was mechanical damage mainly from bad fendering in some of the ports the ships visit."

With the new ships, Wim insists that they are reblocked before the coating is finished so that there are no gaps in the coating as a result of the dock blocks, but with ships already in service the time and expense prevent that.

Based on the experience with touching up the paint on the first two ships in drydock, Wim is working out the most efficient way to get the touch-ups done for future drydockings.

The next opportunity will be with the *Thea Marieke* which will be drydocked in 2014. By then she will have sailed for six years with Ecospeed and Wim is very interested to see how the hull coating has held up.

Wim also points out, "Having Ecospeed on the hull can save us some days in drydock which would be needed to repaint if we were using a less durable coating."

Protecting the hull and the environment at the same time

"Of course regard for the environment is important to us," says Wim. "If you are using the usual toxic antifouling paint, and if you think of all the ships that sail in the ice which are using the normal toxic antifouling paint, you have to wonder how many tons of paint per year are getting scraped off and disappear down in the sea. I can't imagine that it is really so very good."

The Tina was painted with Ecospeed when she was built.

"So it is an environmental consideration, but for us it is also that our ships will be protected from corrosion and that they would rust away if not well protected. Ecospeed provides excellent protection."

Conclusions

While W&R is still refining the aspects of paint touch-ups in drydock, and working out the best way to accomplish in-water cleaning for the Ecospeed coated ships, Wim says, "In general we are quite happy with Ecospeed and looking forward to finding out how well it holds up over the long haul. With the *Crownbreeze* we could really say after five years we only needed a little bit of paint for touch-ups which was fine. And if I compare that, if I would have a ship like the *Monica* in the drydock, we would have spent more money for painting, that's for sure."

Wim is also looking for the best place and method of getting the ships cleaned in the water, a matter of finding the right location and scheduling the cleaning. This is particularly important considering the cost of fuel and the importance of being as efficient as possible.

All in all, W&R is another company which has shown conclusively that Ecospeed is a superior protection for ice-going vessels, and the fact that it is environmentally safe is a great added bonus. ■

The Crown Mary breaks ice, the hull well protected with Ecospeed.

Ecospeed rudder applications prevent cavitation damage

At the end of 2012 the rudders of two vehicle carriers were coated with Ecospeed. The rudder of a 200-meter vessel was treated in Bahrain while a 229-meter ship had its rudder coated in Zhousan, China.

The owners decided to use Ecospeed after cavitation damage had appeared on the rudders of their vessels. Ecospeed will prevent similar damage from occurring again.

The coating provides the rudder (and/or the entire underwater hull) with an impenetrable protective layer. At the same time its toughness and flexibility enable absorption of the forces that are produced by cavi-

Cavitation damage like this is prevented by the Ecospeed coating.

Ecospeed is applied in only two, identical, layers.

The coating will protect the rudder for the rest of its service life.

Application of Ecospeed is adapted to a yard's schedule.

Application of the first layer of Ecospeed.

tation. 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.

Ecospeed is guaranteed for ten years. With an Ecospeed application no repaint will be needed during drydocking. At most, minor touch-ups will be needed. Planning the maintenance of the vessel's stern area therefore becomes much easier.

This is illustrated by an amusing anecdote about an incident that occurred in 2012. A shipowner had recently bought a container vessel. When the ship was scheduled to come into drydock, the owner wanted to have Ecospeed applied to the rudder on his vessel and placed an order. When the ship came out of the water, he called us to cancel the order because the coating on the rudder was still in perfect condition. It turned out that the ship had been coated with Ecospeed five years earlier by its previous owner. The lesson here is simple: If the coating is still on there years later, it must be Ecospeed!

Thanks to the Ecospeed application, the rudders of both vehicle carriers will be safeguarded for the remainder of their service life. ■

No repaints will be required during future drydockings.

Condition after years of use

Ecospeed after sailing in the ice for two years. The ice belt, with clearly visible damage, had not been coated with Ecospeed along with the underwater hull. This has now been remedied to prevent similar damage from reoccurring.

Ecospeed is an environmentally safe underwater ship hull coating system which provides the vessel with long-term protection and dramatically improves the ship's performance. The coating gives a very thorough and lasting defense against cavitation and corrosion damage for a ship hull's entire service life.

It provides the underwater vessel 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.

Ecospeed comes with a 10 year guarantee and is expected to last the lifetime of the vessel. This is in strong contrast to traditional anti-fouling paints where a new application is necessary during each drydocking. With an Ecospeed application no repaint will be needed. At most, minor touch-ups will be needed. Planning the maintenance of the vessel therefore becomes much easier.

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