

# SUBSEA

PROTECTION AND PERFORMANCE



Magazine

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# ECOLOCK® ultra long-lasting protection for offshore hulls



**E**colock is designed to protect offshore vessels for decades without the need for drydocking. Increasingly, offshore units such as FPSOs, FSOs, FLRSUs and others used for offshore oil and gas exploration, drilling, storage and transport need to stay out of drydock for 15, 25 even 40 years.

The challenge has been to protect the underwater hull from corrosion and to provide a cleanable surface so that the biofouling that accumulates can be removed successfully and safely for UWILD and to reduce weight. Ecolock is the answer to that challenge.

Ecolock is an extremely tough and durable coating designed to remain

in excellent condition for 15 - 25 years without drydocking, repair or replacement. Ecolock can be cleaned underwater as often as needed to meet the UWILD and weight requirements of FPSOs, drill ships and other offshore vessels. Ecolock is the result of continual R&D on offshore hull coatings since the 1990s.

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# Editorial

**H**ere at Subsea Industries we have a very clear goal: Clean rivers, seas and oceans. This has been so since I founded the company in 1983. Back then it was called Subsea Cleaning Systems and we offered a line of underwater cleaning equipment to the market. Since then, we have expanded our portfolio greatly, first with Ecospeed and later with our other non-toxic coating systems.

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 and in Washington State in the USA 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 toxic materials, VOCs and microplastics associated with conventional coating systems are eliminated.



Another important outcome of the independent testing 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, including Rotterdam, Seattle and other Washington State ports, Longbeach California, Oslo and other major ports, have made an exception to the ban on the condition that the hull

being cleaned was coated with Ecospeed.

One of the many unique characteristics of Ecospeed is that with repeated underwater hull cleaning, the coating's surface smoothness improves. By optimizing hull surface friction and ensuring the best possible surface hydrodynamic characteristics, fuel savings over the lifetime of the ship are most often found to be in the 20-40 % range. In contrast with AF hull paint systems that rapidly degrade over time, our coating lasts. Therefore, the performance of the ship does not degrade either.

Ships sailing with Ecospeed on their hulls do not emit toxic substances into the water and they also reduce GHG emissions as a result of improved fuel efficiency. A win both above and below the water.



*The ecological benefits were an important factor in the choice to have Ecospeed applied on the newbuild ferry MS Brisen.*

Subsea Industries NV  
Boud Van Rompay  
Founder

# Ecospeed protection for Norwegian energy-efficient sightseeing ferry

Last month the energy-efficient sightseeing ferry MS *Brisen* was baptized in Oslo, Norway. The carbon fibre vessel was built at the Brødrene Aa shipyard in Hyen, for ferry operator Brim Explorer. The ship's hull is protected with our non-toxic, hard coating system Ecospeed which is expected to last the ferry's lifetime.

Owner Brim Explorer is a tourism and ship-owning company investing in, and operating hybrid-electric and electric ships. The company offers silent, sustainable and innovative experiences at sea in Northern Norway and, since recently, also in Oslo. Their first ship *Brim* operates in Lofoten and Tromsø, and their second ship *Berg* operates in Svalbard and Tromsø. The third ship in the fleet, MS *Brisen*, is completely electric and will operate in Oslo. The design of all the ships prioritizes the experience of the guest, and creating minimal impact on the envi-



*MS Brisen will operate in Oslo and is the first fully electric ferry owned by Brim Explorer.*

ronment. They are unique in the world.<sup>1</sup>

Brim Explorer strictly follows national and international laws, regulations and guidelines as well as company standards in regard to pollution prevention and animal

welfare. When encountering marine mammals and other wildlife they follow the whale watching guidelines of Visit Tromsø. They believe in protecting and preserving the ocean by sharing its life, vulnerability, and majesty.<sup>2</sup>

## Stunning design with a breath-taking view

Brødrene Aa is a world leader in the construction of fast ferries made of carbon fiber composites. They have two shipyards. The MS *Brisen* was built at the Hyen shipyard which employs 170 skilled workers. Hyen is a village near the end of the Hyefjorden on the west coast of Norway, and you would be hard-pressed to find a more idyllic location for the design and construction of environmentally friendly vessels.



*The hull of the energy-efficient sightseeing catamaran is made of carbon fiber.*

<sup>1</sup> Source: <https://brimexplorer.com/about-us>

<sup>2</sup> Source: <https://brimexplorer.com/sustainability>



Beautiful view of the shipyard in Hyen, Norway, where the vessel was built.



Application of first Ecospeed layer.

The yard is named after the brothers Olav Aa (1920-2006) and Bertel Aa (1919-2009), who founded the company in 1947. Brødrene Aa has built a comprehensive range of boats over the past 60 years. In the 1940s and 1950s the yard made leisure crafts in mahogany. Gradually larger passenger ferries were built in wood. In the mid-1970s the company switched to composite materials building the first ever GRP-Sandwich vessel approved by DNV.

By exploiting composite production expertise, they re-entered the fast-

ferry business in the early 2000s with the world's first commercial passenger vessel made in carbon fibre. This technology-breakthrough has led to a new era of shipbuilding for Brødrene Aa.

The yard in Hyen is modern and well suited for manufacturing of composite products. It has a total of 3000 square meters of indoor facilities, fully moisture-and temperature controlled.<sup>3</sup>

Built in light weight carbon fiber sandwich, featuring an advanced

slender hull, the passenger line consists of highly fuel-efficient and environmentally friendly vessels. By utilizing the advantages of carbon fiber reinforced composites, the structural weight is reduced by 40% compared to aluminum.

MS *Brisen* is a 25.3 m catamaran providing tourists and travellers a zero-emission sailing experience. With room for 149 passengers, the vessel boasts a characteristic and purpose-built design optimized for sightseeing and functions.<sup>4</sup>

“Applying Ecospeed is quite easy if you have some experience applying paint with a spray gun,” says spray paint specialist Torgeir “Toggen” Ulleland who performed the application on MS *Brisen*.

Nick DeLashmutt, project manager at Brødrene Aa was also very satisfied with how the project was handled. “We appreciate the good cooperation and support from GearConsult and Subsea Industries throughout the various project phas-

<sup>3</sup> Source: <https://www.braa.no/about>

<sup>4</sup> Source: <https://www.braa.no/passenger>



*Ecospeed is applied in two layers and offers a lasting non-toxic protection.*



*Overcoating time between layers is very short. Smaller projects like this can be completed in a single day.*



*No repaint will be needed during future dockings, only small touch-ups.*

es which helped contribute to the successful application of Ecospeed.”

### **The perfect coating for a revolutionary ship**

“In 2018 I got to know the owners of Brim Explorer at a shipping event,” recalls Mr. Ludvig Nyquist, CEO and manager for GearConsult, who represents Subsea Industries in Norway. “They showed an interest in green solutions, but we did not have anything that fit their vessel

type at that time. When I met Subsea Industries at Nor Shipping in 2019 and learned about Ecospeed, I thought that it would be a perfect product for Brim Explorer. They were also at Nor Shipping so I introduced the two companies.”

Ludvig continues, “The owners of Brim Explorer liked Ecospeed and wanted to use it on their two first aluminum vessels, *Brim* and *Berg*. However, for practical reasons they were not able to go ahead with

the order at that time. This is a decision they have regretted since. When it came time to build *Brisen* they were very clear that they wanted to use Ecospeed on this vessel. They will also use Ecospeed on their next two newbuildings.”

Going forward Brim Explorer have chosen Ecospeed for their fleet because they are concerned with all environmental aspects of their operation. “With Ecospeed we eliminate all chemical emissions to the sea, preventing harmful chemicals from disturbing the fragile ecosystems in the areas in which we operate,” says Espen Larsen-Hakkebo, CEO and Co-founder of Brim Explorer. “Our business is creating unforgettable experiences: it only makes sense to do this causing as little impact to the environment as possible. Ecospeed is therefore our preferred choice over any antifouling system.” ■

Visit our website [www.subind.net](http://www.subind.net) for more information and additional case studies or contact us at

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*Hull of MS Brisen after application of both layers.*

# Lasting p

## Running gear

Ecoshield offers long-lasting protection for underwater ship gear susceptible to corrosion and cavitation erosion. The coating protects these areas for the service life of the ship. There is no need for recoating or major repair.

### Rudders



### Thrusters



### Nozzles



### Stabilizer fins



### Thruster tunnels





# rotection

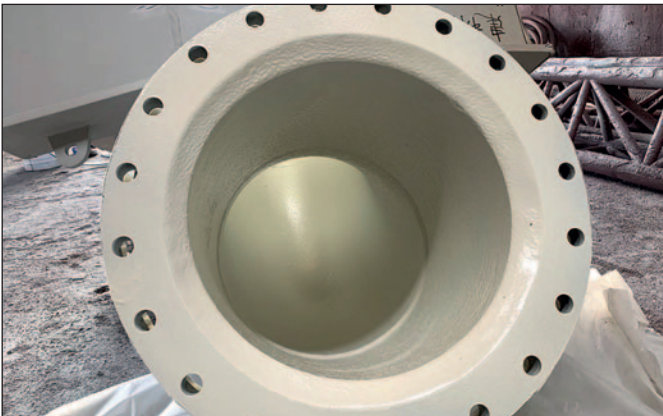
## Scrubbers

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

### Outlets



### Overboard pipes



### The actual scrubber



### Holding tanks



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# Ecospeed receives upgraded abrasion-resistant coating certificate for all ice classes


The Lloyd's Register certificate that recognizes Ecospeed as an abrasion-resistant ice coating has been renewed and upgraded. This once again 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 of all ice classes 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. This saves money in terms of requiring less steel to build the hull and reducing the overall weight of the ship. ■

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Certificate No: LR21476358IC-02  
Issue Date: 01/09/2021  
Expiry Date: 31/08/2026

## Recognised abrasion resistant ice coating

The coating system below is recognised as an abrasion resistant ice coating for ships operating in polar regions, the classification of which is noted below.

The coating system is considered as meeting the requirements of 'effective protection' and 'special surface coating', as defined in applicable LR Rules and Regulations and / or Finnish-Swedish Ice Class Rules / Trafi Regulations, for vessels with applicable Polar Class or Ice Class notations.

The use and applicability of such coating systems, as designated by this certificate, may be considered when applying the relevant Rules criteria, for construction and service conditions.

<b>Manufacturer</b>	<b>Subsea Industries N.V.</b>
<b>Address</b>	Noorderlaan 9, Haven 29, Antwerpen, 2030, Belgium
<b>Product</b>	<b>ECOSPEED</b>
<b>Ice Classification</b>	PC1 to PC7
<b>Product Colours</b>	Unspecified
<b>Film Thickness</b>	1000µm
<b>Surface Cleanliness</b>	Minimum Sa 2½ (ISO 8501-1)
<b>Surface Profile</b>	Minimum 75 µm

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 technical datasheets, training and advice, and with the relevant requirements of Lloyd's Register's Rules and Regulations.

*Heather Hughes*

**Heather Hughes**  
Team Leader - Non-Metallics to Lloyd's Register EMEA  
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# Subsea Industries is looking for representative agents



**T**o 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 chemi-

cals 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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# SUBSEA

PROTECTION AND PERFORMANCE



**S**ubsea 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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