



Hempel's
Biocidfreie produkter.

Biocide Free Antifoulings



Ecopower

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Hempaspeed TF

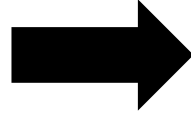
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Silic One Fouling Release

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Hempel's Silic One antifouling solution



The most efficient



Available in shades:

-  Red
-  Black
-  Blue



Fouling protection



Biocide and copper free



Easy to apply & maintain



Works on propellers



Fuel saving

SilicOne – det virker!

Practical Boat Owner
UK Magazine:

ANTIFOULING ON TEST 100

Hempel Silic One

TYPE Biocide-free eco-friendly antifoul
PREPARATION Hempel Light Primer 1 coat,
Silic One Top-Coat 1 coat
INITIAL COST €1340
MAINTAINED COST €0

Silic One had the most stringent set of application instructions of our group. We strongly advised to apply it on to a sanded hull but, if the existing coating is in good order, a barrier coat of Hempel's Silic Seal will enable the switch.

Comencing with Hempel's two-component Light Primer, the hull surface must be left to dry with a minimum of four thin layers. Next, a tie-coat must be applied while the last coat of primer is still tacky. After two hours the first of two coats of Silic One can be applied with a minimum of eight hours in between, the last of which has a 15-hour reversion-drying time before immersion.

If it sounds like an involved process that's because it is, taking nearly three days from start to finish once drying intervals have been factored in. However,

BEFORE
Sludge buildup
around rudder
if used for
boating for 10 yr

AFTER
Impressive
result – no trace
remnants of
slime

Best on test

The results speak for themselves. After seven months, Silic One has performed the best of all our groups, with no signs of weed or shell growth and the least amount of surface slime. It also wiped off exceptionally easily. An impressive result for a biocide-free antifouling.

Biocides if too is recommended (they're applied two years before topping up with one fresh coat of Silic One, the high initial application cost is offset over time. Its six-year annualised cost comes in lower than all other products on test except Hempel Tiger Aho 7100 and Coppercoat 8 if you include the cost of enclothing.



Chalmers
Universitet
Sverige

CHALMERS Education Research Collaboration About Chalmers

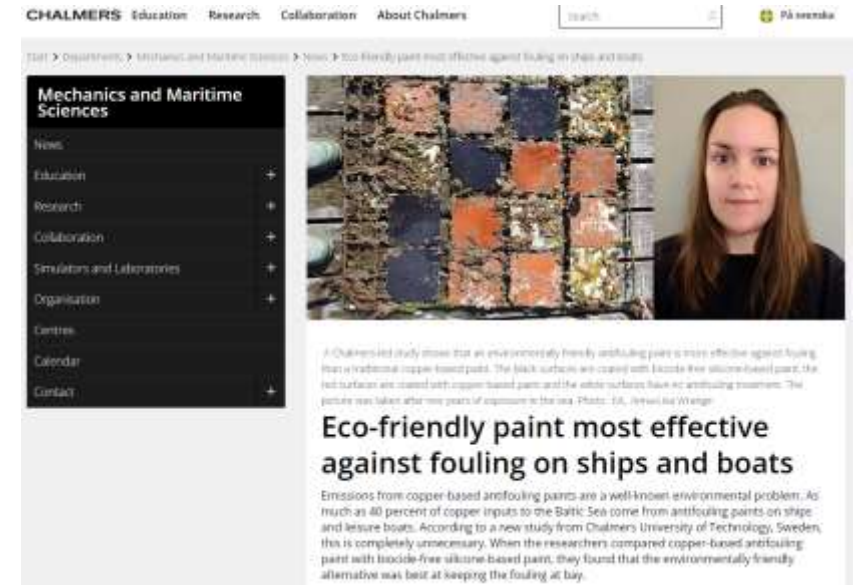
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Mechanics and Maritime Sciences

Eco-friendly paint most effective against fouling on ships and boats

A Chalmers study shows that an environmentally friendly antifouling paint is more effective against fouling than a traditional copper-based paint. The black surface we coated with biocide-free silicone-based paint, the red surface we coated with copper-based paint and the white surface has no antifouling treatment. The picture was taken after one year of exposure to the sea. Photo: Ed. Arvid Nil/Wing

Emissions from copper-based antifouling paints are a well-known environmental problem. As much as 40 percent of copper inputs to the Baltic Sea come from antifouling paints on ships and leisure boats. According to a new study from Chalmers University of Technology, Sweden, this is completely unnecessary. When the researchers compared copper-based antifouling paint with biocide-free silicone-based paint, they found that the environmentally friendly alternative was best at keeping the fouling at bay.



Abstract

To combat unwanted fouling on immersed hulls, biocidal antifouling coatings are commonly applied to vessels trafficking the Baltic Sea. Here, the efficacy, environmental sustainability and market barriers of silicone foul-release coatings (FRCs) was assessed for this region to evaluate their viability as replacements for biocidal coatings. Coated panels were exposed statically over a 1 year period at three locations in the Baltic Sea region to assess the long-term performance of a biocide-free FRC and two copper coatings. The FRC was found to perform equally well or significantly better than the copper coatings. Even though most silicone FRCs on the market are biocide-free, a review of the literature regarding toxic effects and the identity and environmental fate of leachables shows that they may not be completely environmentally benign, simply for the lack of biocides. Nonetheless, FRCs are substantially less toxic compared to biocidal antifouling coatings and their use should be promoted.

Hempaspeed TF

750 ml



2,5 ltr



True Blue 30390

Ultimate White 10101

Black 19990

Grey 10430

Pain(t)less

Nu bliver det

let at være

bådejer!



A radical **new** and **innovative** solution!

- ✓ **Recharger** for Hempel's silicone systems.
- ✓ Additional reason why to choose Silic One System
- ✓ **No more painting**, just apply Infinity on top of Silic One
- ✓ Regular boat maintenance is much easier, faster and cost effective!
- ✓ Less or no dependency on the weather
- ✓ Introducing a new level of Sustainability to the Yachting community.



Forårsklargøring Tips & Tricks

Sikkerhed:

- Personligt sikkerhedsudstyr:
 - Handsker – benyt handsker beregnet til formålet – ikke havehandsker!
 - Hvis der kommer maling på handskerne, skift handsker!
 - Benyt briller.
 - Benyt heldækkende tøj, f.eks keddeklædt.
 - Benyt åndedrætsværn under slibning.
 - Andet:
 - Benyt støvsuger, på slibe/skrabe værktøj, beregnet til formålet.
 - Bortskaf slibestøv, maling rester som farligt affald.
- Overhold gældende regler, benyt kun bundmaling som er godkendt til formålet!**



Hempel's Silic One tips og tricks:

- Læs teksten på dåsen, eller alternativt på www.hempelyacht.dk
 - Overhold temperatur- og luftfugtighedsintervaller.
 - Vask båden grundigt med Preclean før og efter slibning. Skyl grundigt med ferskvand og lad båden tørre.
 - Påfør nok maling, gælder primer såvel som bundmaling. Benyt Hempel's malingberegner som findes på [Yacht Paint Calculator](#)
 - Hvis Du har maling tilovers – så er der påført for lidt.
 - Overhold overmalingsintervaller, minimum såvel som maksimum.
 - Rengør ruller og pensler grundigt inden brug – urenheder i malingfilmen giver begroning.
 - Åben kun en dåse ad gangen. Vær opmærksom på 1 times potlife.
 - Dåser der er åbnet skal kasseres efter brug – Kan ikke gemmes til næste dag/år.
 - Check holdbarhedsdato på emballagen. (18 md efter produktionsdato).
-
- ***HUSK! - Intet resultat bliver bedre end forarbejdet.***

Er de biocidfreie produkter
gode nok?



JA!



Eksterne resultater:

Chalmers University research (2022)

- ✓ This study shows that an environmentally friendly antifouling paint **is more effective against fouling than a traditional copper-based paint**
- ✓ The study was carried out at **three sites** in the **Baltic Sea** region and the Skagerrak and the results have been published in the scientific journal *Marine Pollution Bulletin*

Research done by Maria Lagerström from Chalmers University together with colleagues from the University of Gothenburg and the Swedish Environmental Institute IVL



Photo taken after 2 years of sea exposure:

- **black** surfaces coated with biocide-free silicone-based paint
- **red** surfaces coated with **copper-based paint**
- white surfaces (full of fouling) have no antifouling treatment

Vene magazine (2023), Finland

- ✓ Independent **biocide-free antifouling test**
- ✓ **Hempel's Silic One positioned on the first, Hempaspeed TF the second place, outperforming all other biocide containing products**



Practical Boat Owner magazine UK⁽²⁰²²⁾, UK

- ✓ Big independent antifouling test included 8 antifouling products
- ✓ The aim of the test was to compare traditional **copper-based annual antifouling** with innovative, longer lasting and more environmentally sensitive alternatives
- ✓ Hempel's Silic One rated **BEST ON TEST**

Hempel Silic One

TYPE Biocide-free medium term antifoul
PREPARATION Hempel Light Primer 4 coats, Silic One Tie-Coat 1 coat
INITIAL COST £1,045
ANNUALISED COST £233

Silic One had the most stringent set of application instructions of our group. It's strongly advised to apply it on to a stripped hull but, if the existing coating is in good order, a barrier coat of Hempel's Silic Seal will enable the switch. Commencing with Hempel's two-component Light Primer, the bare surface must be built up with a minimum of four thin layers. Next, a tie-coat must be applied while the last coat of primer is still tacky. After two hours the first of two coats of Silic One can be applied with a minimum of eight hours in between, the last of which has a 16-hour minimum drying time before immersion.

If it sounds like an involved process that's because it is, taking nearly three days from start to finish once drying intervals have been factored in. However,

the results speak for themselves. After seven months, Silic One has performed the best of all our group, with no signs of weed or shell growth and the least amount of surface slime. It also wiped off exceptionally easily. An impressive result for a biocide-free antifouling.

Because it has a recommended lifespan of two years before topping up with one fresh coat of Silic One, the high initial application cost is offset over time. Its six-year annualised cost comes in lower than all other products on test except Hempel Tiger Xtra 7100 and Coppercoat if you exclude the cost of shotblasting.

BEFORE
Smooth rubbery surface makes it hard for fouling to grip

AFTER
Impressive result - no weed, barnacles or even slime

Best on test



BÅD Magasinet (2020), DK



With focus on the environment

The vulnerability of the marine environment cannot be ignored. It needs to be cared for in order for plants and species to survive. Action needs to be taken now by shifting to environmentally friendly systems as regards to antifouling. With the focus on the environment, we will show you the results from tests done throughout season 2019 of the most environmental friendly antifouling.

Spring is the busiest time for testing the hull of the boat. Through three of habit, one will choose the same antifouling as previous years.

This antifouling test is made once a year. The test helps us navigate the market of antifouling and in which direction the paint producers are heading in their research. Demands and regulations from the Ministry of Environment and EU need to be followed. They especially address type and amount of pollutants. At the same time, the paint producers and environmental engineering institutions are collaborating to meet their demands and approval procedures.

This close collaboration is important for the development of new biocides. The long term effect of these biocides is tested in several environmental conditions. All this research and development is being done to prepare for May 1st, 2021, when the EU's biocidal product regulation comes into full force.

PURPOSE

The Danish magazine BÅD has throughout season 2019 monitored the most environmental friendly antifouling and treatment products. The products have been rated with respect to the level of fouling over the sailing season of seven months. The test boat has sailed approx. 200 nautical miles and anchored in stream-filled waters over 30 days. The test boat has also been into harbour and used for weekend trips and activities which represent the main sailing behaviour of a Danish sailor.

CONCLUSION

For the test period, 12 test areas on the boat hull have been exposed to the environment of the marina. Several of the

pickling products had similar fouling results as previous seasons tests have shown. The product Aero G showed in test season 2018 a heavy fouling, which according to the producer was due to a manufacturing defect. The product has in the test 2019 shown to have a antifouling effect similar to the other tested biocidal products. The most environmental friendly treatments consisted primarily of biocide free foil and biocide free paint based on hydrogel. As a result of new foil technology, silicone based foil can be an alternative to biocidal antifouling paint. Although, the new blue Silic One coating should be emphasised as a product with the same antifouling effect as the tested biocidal products.



- ✓ Independent **biocide-free antifouling test**
- ✓ 12 test areas, 7 months
- ✓ Proved that biocide-free paint can be an alternative to biocide containing antifouling
- ✓ Silic One has the same antifouling effect as the tested **traditional antifouling**