

## TYPE APPROVAL CERTIFICATE

**This is to certify:****That the TBT-Free Anti-Fouling Systems**

with type designation(s)

**ECOLOFLEX SPC100 FWR, ECOLOFLEX SPC150 HyB and ECOLOFLEX SPC200**

Issued to

**NIPPON PAINT MARINE(Zhangjiagang) Co.,Ltd**  
**Zhangjiagang, China**

is found to comply with

**DNV GL class programme DNVGL-CP-0110 – Type approval – Anti-fouling systems****Application :****Organotin-free self-polishing anti-fouling system.**This Certificate is valid until **2021-08-21**.Issued at **Høvik** on **2016-08-22**DNV GL local station: **Jiangyin**Approval Engineer: **Helene Bjerke**for **DNV GL**

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**Martin Strande**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million.

In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

Certificate No: **TAK00000F9**  
File No: **335.30**  
Job Id: **262.1-023521-1**

## Product description

Organotin-free self-polishing anti-fouling paints; **ECOLOFLEX SPC100 FWR, ECOLOFLEX SPC150 HyB and ECOLOFLEX SPC200.**

### Colours:

The products are available in various colours. Please contact the local Nippon Paint representative for details.

### Active ingredients:

CAS No. 1317-39-1     Copper (1) oxide  
CAS No. 14915-37-8     bis(1-hydroxy-1H-pyridine-2-thionato-O,S)copper

## Application/Limitation

The issuance of this certificate is solely connected to the control of the Anti-Fouling System, AFS, with regard to compliance with the International Convention on the Control of Harmful Anti-Fouling Systems on Ships.

It does not cover verification of surface preparation, corrosion protection, fire, health and safety precautions, durability of the AFS or environmental properties other than regulated by the Convention.

## Type Approval documentation

- 1.
- 2.
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- 3.
- 4.

## Tests carried out

Type Testing carried out according to **Type Approval documentation**, with the following results, ref. Reports from CCS-DNV Technology Institute, China, of 2012-03-22.

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|---------------------------------|--------------|-------------------|
| - <b>ECOLOFLEX SPC 100 FWR:</b> | 0.0281 % tin | (No TBT detected) |
| - <b>ECOLOFLEX SPC 150 HyB</b>  | 0.0266 % tin | (No TBT detected) |
| - <b>ECOLOFLEX SPC 200:</b>     | 0.0202 % tin | (No TBT detected) |

## Marking of product

Product shall be marked with *manufacturer's name*; **Nippon Paint Marine (Zhangjiagang) Co., Ltd., China**, *production plant* and *type designation*.

## Periodical Assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Assessment to be performed after 2.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).



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The main elements of the Periodical Assessment are:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

END OF CERTIFICATE