DNV·GL

Certificate No:
TAK00001ZJ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the TBT-Free Anti-Fouling Systems

with type designation(s)
ECO AF

Issued to
P&C TECH CO., LTD.
161, Pungsesandan-ro, Pungse-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Korea

is found to comply with
DNV GL class programme DNVGL-CP-0110 – Type approval – Anti-fouling systems

Application :

Organotin free effluent-control self-polishing antifouling system

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2021-01-04**
This Certificate is valid until **2025-12-31**.
DNV GL local station: **Seoul, FiS Korea**

for **DNV GL**

Approval Engineer: **Christine Löll**

Thorsten Lohmann
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

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Job Id: **262.1-034228-1**
Certificate No: **TAK00001ZJ**

Product description

ECO AF: Organotin-free effluent-control self-polishing antifouling paint

Colours: light red; brown red

Active ingredients:
Copper(1)oxide CAS No. 1317-39-1

Manufactured by

P&C TECH CO., LTD. 161, Pungsesandan-ro, Pungse-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Korea

DNV GL local office: Seoul

Responsibility

The Company (stated on the front page of this Certificate) takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

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

Tests carried out

Type Testing carried out in accordance with Type Approval documentation, with the following test results, ref. reports No. TAK-2020-016855 and TAK-2020-016856 from Korean Testing & Research Institute dated 2020-02-11:

- **ECO AF (brown red)** 0,0341% (no TBT detected)
- **ECO AF (light red)** 0,0194% (no TBT detected)

Marking of product

Product shall be marked with *manufacturer's name*; *place of production and type designation* **ECO AF**. The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

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.

Periodical Assessment (Certificate Retention) and renewal after 5 years (Certificate Renewal) shall be performed acc. DNV GL CP-0338.

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END OF CERTIFICATE