DNV·GL

Certificate No:
TAK00001F7

TYPE APPROVAL CERTIFICATE

This is to certify:

That the TBT-Free Anti-Fouling Systems

with type designation(s)
HEMPEL'S ANTIFOULING ATLANTIC+ 73850

Issued to
Hempel A/S
Kgs. Lyngby, Hovedstaden, Denmark

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.

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

This Certificate is valid until **2023-12-11**.

Issued at **Høvik** on **2018-12-12**
DNV GL local station: **Copenhagen** for **DNV GL**

Approval Engineer: **Gisle Hersvik**

Rikard Törnqvist
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.

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Job Id: **262.1-029918-1**
Certificate No: **TAK00001F7**

Product description

Organotin free self-polishing anti-fouling paint: **HEMPEL'S ANTIFOULING ATLANTIC+ 73850**

Colours:
The products may be available in various colours. Please contact the local Hempel representative for details.

Active ingredients:
CAS No. 1317-39-1 Copper(1)oxide
CAS No. 12122-67-7 Zinc ethylene-1,2-bisdithiocarbamate (zineb)

Manufactured by

Hempel (Argentina) S.R.L., Calle 7 N°79 Parque Industrial de Pilar, B1629MXA Pilar, Buenos Aires, Argentina

DNV GL local station: Buenos Aires

Hempel Paints (Emirates) LLC., Interchange No. 08, Sajja Area, Plot No 698/G Al Dhaid Road, P.O.Box 2000, Sharjah, UAE

DNV GL local station: Abu Dhabi

Hempel Manufacturing (Malaysia) Sdn. Bhd., Batu 6, Jalan Batu Pahat, 86000 Kluang Johor, Malaysia

DNV GL local station: Kuala Lumpur

P.T. Hempel Indonesia, Jalan Raya Sultan Agung Km 27, Pondok Ungu, Bekasi 17132, Indonesia

DNV GL local station: Jakarta

Hempel (Kunshan) Coatings Ltd., No. 1 Hai Hong Road, Zhangpu 215321 Kunshan, Jiangsu Province, P.R. China

DNV GL local station: Shanghai

Hempel (Yantai) Coatings Ltd., No.12 Zhujiang Road, Economic & Tech Development Zone, Yantai 264006, Shangdong Province, P.R. China

DNV GL local station: Qingdao

Hempel (Guangzhou) Coatings Ltd., No.3 Canghai 4th Road, Yonghe District, Guangzhou Economic Technology Development District, Guangzhou, P.R. China

DNV GL local station: Guangzhou

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 according to **Type Approval documentation**, with the following test results (ref. Test Report from PRA, UK of 2018-09-20):

— **HEMPEL'S ANTIFOULING ATLANTIC+ 73850**-51110: 0.0404 % tin

Marking of product

Product/package shall be marked with *manufacturer's name and address***; Hempel A/S**, *place of production, type designation* and *date of production/batch number*.

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 to be performed after 2 and 3.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- 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