Certificate No:
TAK000019D

TYPE APPROVAL CERTIFICATE

This is to certify:

That the TBT-Free Anti-Fouling Systems

with type designation(s)
SeaForce 30, SeaForce 60 and SeaForce 90

Issued to
Jotun A/S
SANDEFJORD, Norway

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

Application :

Organo-tin free self-polishing hydrolysing type anti-fouling system.

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

Issued at **Høvik** on **2018-07-01**
This Certificate is valid until **2023-06-30**.
DNV GL local station: **Sandefjord**

Approval Engineer: **Gisle Hersvik**

for **DNV GL**

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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Product description

Organo-tin free self-polishing hydrolysing type anti-fouling paints;
SeaForce 30, **SeaForce 60** and **SeaForce 90**.

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

Active ingredients:

Cuprous oxide	CAS No. 1317-39-1	
Cuprous Pyrithione	CAS No. 14915-37-8	(SeaForce 60 and SeaForce 90)
Zineb	CAS No. 12122-67-7	

Manufactured by

Jotun Boya San. Ve Ticaret A.S., Yeni Camlik Caddesi, Ayaz Sokat No:2 Kat:4, 34418 4, Levent-Istanbul, Turkey

DNV GL local station: Istanbul

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. Test Reports from Molab as of 2008-03-13 and SINTEF of 2004-08-31:

- **SeaForce 30**: 0,067% (No TBT-compounds detected)
- **SeaForce 60**: 0,063% (No TBT-compounds detected)
- **SeaForce 90**: 0,090% (No TBT-compounds detected)

Marking of product

Product shall be marked with *manufacturer's name*; **Jotun Boya San. Ve Ticaret A.S., Turkey** and *type designation*.

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