Certificate no.:
TAK00002B2

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Protective Coating Systems - Seawater Ballast Tanks

with type designation(s)
BANNOH 2000 HS and BANNOH 2000 HS QD

issued to
Chugoku Samhwa Paints, Ltd.
Gimhae-si, Gyeongsangnam-do, Korea, Republic of

is found to comply with
DNV rules for classification – Ships
DNV class programme DNV-CP-0108 – Type approval – Protective coating systems for seawater ballast tanks and double-side skin spaces
IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC)
IACS Unified Interpretations SC223. For Application of SOLAS Regulation II-1/3-2 Performance Standard for Protective Coatings (PSPC) for Dedicated Seawater Ballast Tanks in All Types of Ships and Double-side Skin Spaces of Bulk Carriers.

Application:

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

Issued at **Hamburg** on **2023-12-13**
This Certificate is valid until **2028-12-12**.
DNV local unit: **Gimhae Station**

Approval Engineer: **Enno Brück**

for **DNV**

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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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.

Product description

BANNOH 2000 HS and BANNOH 2000 HS QD 2-component epoxy based coating for corrosion protection of steel surfaces

Manufactured by

Chugoku Samhwa Paints Ltd. 322, Gimhae-daero 927 beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea.

DNV local office: Gimhae

Responsibility

The holder of 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

This approval is solely connected to the corrosion prevention properties of the coating material. The approval does not include any evaluation of toxicity, contamination, pollution, or fire technical properties.

BANNOH 2000 HS and **BANNOH 2000 HS QD** are approved for application on blast cleaned surfaces and on shop primed surfaces. The following shop primers are prequalified:

- CERABOND 2000 [Chugoku Marine Paints/Chugoku Samhwa Paints]
- GALVANY SHOPPRIMER IZ182(J) [KCC Corporation]
- GALVANY SHOPPRIMER IZ182(S) [KCC Corporation]

Surface preparation and coating application as per PSPC or manufacturer's recommendations, whichever is stricter.

The durability of the applied coating system will depend on the steel surface preparation, coating application and the environmental conditions.

The Type Approval Certificate is invalid if the formulation of the epoxy coatings **BANNOH HS 2000** and **BANNOH 2000 HS QD** are changed to a degree deemed significant by DNV. If the formulation of any of the listed pre-qualified shop primers is changed to a degree deemed significant by DNV that shop primer cannot be used as part of the Protective Coating System.

Tests carried out

Type Testing carried out in accordance with DNV CP-0108. The tests are carried out in accordance with procedures in IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC), ref. IACS UI SC 223;

- Korea Testing & Research Institute, Report No. 474, "BALLAST TANK PROTECTIVE COATING TEST OF 2 * 160 µm BANNOH 2000 HS QD ON CERABOND 2000" dated 2023-10-06.
- Korea Testing & Research Institute, Report No. 475, "BALLAST TANK PROTECTIVE COATING TEST OF 2 * 160 µm BANNOH 2000 HS ON CERABOND 2000" dated 2023-10-06.
- Korea Testing & Research Institute, Report No. 478, "BALLAST TANK PROTECTIVE COATING TEST OF 2 * 160 µm BANNOH 2000 HS QD ON IZ182(J)" dated 2023-10-06.
- Korea Testing & Research Institute, Report No. 473, "BALLAST TANK PROTECTIVE COATING TEST OF 2 * 160 µm BANNOH 2000 HS QD ON IZ182(S)" dated 2023-10-06.

Marking of product

Product/package shall be marked with manufacturer's name and address; **Chugoku Samhwa Paints Ltd., Korea**, type designation; **BANNOH HS 2000 / BANNOH HS 2000 QD**, 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 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 CP-0338.

END OF CERTIFICATE