DNV·GL

Certificate No:
TAK00001KM

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Protective Coating Systems - Seawater Ballast Tanks

with type designation(s)
EPOMARINE SUPER EX-21

Issued to
COSCO Kansai Paint & Chemicals (Zhuhai) Co., Ltd.
Zhuhai Harbor Industrial Zone,
China

is found to comply with
DNV GL class programme DNVGL-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 :

For use in ballast tanks, double-skin spaces, cofferdams and similar areas. Surface preparation and coating application according to PSPC or manufacturer's recommendations, whichever is stricter.

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

Issued at **Hamburg** on **2019-04-11**
This Certificate is valid until **2023-12-31**.
DNV GL local station: **Guangzhou**

Approval Engineer: **Enno Brück**

for **DNV GL**

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.

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Job Id: **262.1-010436-4**
Certificate No: **TAK00001KM**

Product description

EPOMARINE SUPER EX-21, a high-build, modified amine cured non-tar epoxy coating for corrosion protection of steel surfaces.

Manufactured by

COSCO Kansai Paint & Chemicals (Zhuhai) Co., Ltd., Zhuhai Harbor Industrial Zone, China

DNV GL local office: **Guangzhou**

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.

EPOMARINE SUPER EX-21 is approved for application on blast cleaned surfaces and on prequalified shop primed surfaces. The following shop primer has been prequalified:

- SD Zinc Primer 1000 HA(S) [COSCO Kansai Paint & Chemicals (Zhuhai) Co., Ltd.]
- 725-E47 Inorganic zinc silicate primer [Xiamen Shuangrui Ship Coating Co., Ltd.]
- F6001 Inorganic zinc silicate primer [JiangxiSheng Jingcheng Industrial Co., Ltd.]
- TH-2 Zinc silicate primer [Yejian New-Material Co., Ltd.]

Surface preparation and coating application according to 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 coating **EPOMARINE SUPER EX-21** is changed to a degree deemed significant by DNV GL. If the formulation of the listed pre-qualified shop primer is changed to a degree deemed significant by DNV GL the shop primer cannot be used as part of the Protective Coating System.

Tests carried out

Type Testing carried out in accordance with DNV GL CP-0108. The tests are carried out according to the procedures in IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC), ref. IACS UI SC223:

- CCS-DNV Technology Institute Technical Report No. CDTI-CL-09A0002, Rev. 01, "Ballast Tank Coating Test of EPOMARINE SUPER EX-21 on SD Zinc 1000HA(S) Shop Primer", date 2009-06-01.
- Test and Verification Center for Ship Materials on Coatings and Paintings Report No. JX10376," Epomarine Super EX21 on 725-E47 inorganic zinc silicate shop primer", date 2010-02-22.
- Test and Verification Center for Ship Materials on Coatings and Paintings Report No. JX10376," Epomarine Super EX21 on 725-E47 inorganic zinc silicate shop primer", date 2010-02-22.
- Test and Verification Center for Ship Materials on Coatings and Paintings Report No. JX13139," Epomarine Super EX21 on F-6001 inorganic zinc silicate shop primer", date 2013-06-17.
- Test and Verification Center for Ship Materials on Coatings and Paintings Report No. JX14131," Epomarine Super EX21 on TH-2 zinc silicate shop primer", date 2010-02-22

Marking of product

Product/package shall be marked with *manufacturer's name and address*; **COSCO Kansai Paint & Chemicals (Zhuhai) Co., Ltd., China**, *type designation*; **EPOMARINE SUPER EX-21**, 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).

END OF CERTIFICATE