

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Protective Coating Systems - Seawater Ballast Tanks**with type designation(s)
KOREPOX EH2350

Issued to

KCC Corporation, Ulsan Plant
Ulsan, Republic of Korea

is found to comply with

DNV GL class programme CP-0108 – Type Approval of non-metallic materials – 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 as per 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.**This Certificate is valid until **2016-06-30**.Issued at **Høvik** on **2016-03-10**DNV GL local station: **Ulsan**Approval Engineer: **Gisle Hersvik**for **DNV GL**

Martin Strande
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.

Product description

KOREPOX EH2350; two-component, epoxy based, amide curing type, self-priming coatings for corrosion protection of steel surfaces.

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.

KOREPOX EH2350 is approved for application on blast cleaned surfaces and on prequalified shop primed surfaces. The following shop primers have been prequalified:

Galvany Shopprimer IZ182(J)	[KCC Corp.]
Galvany Shopprimer IZ182(N)	[KCC Corp.]
Galvany Shopprimer IZ182(C)	[KCC Corp.]
Galvany Shopprimer IZ182(S)	[KCC Corp.]
SigmaWeld 165 (Sigma Proferral MC)	[PPG]
Cerabond 2000	[Chugoku Marine Paints]
Hempel's Shopprimer ZS15890	[Hempel A/S]
W53-02	[Taicang Lanyan Paint Co., Ltd.]
TH-2	[Jiangsu Yejian Anti-corrosion Material Co., Ltd.]
KCI Zinc 1000	[Kunsul Chemical Ind. Co., Ltd.]
Starzinc 318	[SKS Paint Co., Ltd.]
Muki Z 2008	[Jotun A/S]
Rainbow SP-09 (SP-09 Cathozinc Shop Primer, Type-2)	[Yung Chi Paint & Varnish Mfg. Co]

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 coating **KOREPOX EH2350** is changed to a degree deemed significant by DNV GL. If the formulation of any of the listed pre-qualified shop primers is changed to a degree deemed significant by DNV GL that shop primer cannot be used as part of the Protective Coating System.

Type Approval documentation

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Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**. The Test Reports from Korea Testing & Research Institute (KTR) and Korea Conformity Laboratories (KCL) show that KOREPOX EH2350 comply with IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC), ref. IACS UI SC 223.

- Korea Testing & Research Institute (KTR) Technical Report No. KTR-PSPC-047, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on W53-02" of 2011-02-23.
- Korea Testing & Research Institute (KTR) Technical Report No. KTR-PSPC-048, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on TH-2" of 2011-02-23.
- Korea Testing & Research Institute (KTR) Technical Report No. KTR-PSPC-051, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Galvany Shopprimer IZ182(N)" of 2011-02-23.
- Korea Testing & Research Institute (KTR) Technical Report No. KTR-PSPC-052, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Sigmaweld 165" of 2011-02-23.
- Korea Testing & Research Institute (KTR) Technical Report No. KTR-PSPC-054, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Cerabond 2000" of 2011-02-23.
- Korea Testing & Research Institute (KTR) Technical Report No. KTR-PSPC-055, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Hempel's Shopprimer ZS 15890" of 2011-02-23.
- Korea Testing & Research Institute (KTR) Technical Report No. KTR-PSPC-057, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Galvany Shopprimer IZ182(J)" of 2011-02-23.
- Korea Conformity Laboratories (KCL) Technical Report No. KCL-PSPC-001, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Galvany shopprimer IZ182(J)" of 2012-03-27.
- Korea Conformity Laboratories (KCL) Technical Report No. KCL-PSPC-003, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Sigmaweld 165" of 2012-03-27.
- Korea Conformity Laboratories (KCL) Technical Report No. KCL-PSPC-004, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on KCI Zinc 1000" of 2012-03-27.
- Korea Conformity Laboratories (KCL) Technical Report No. KCL-PSPC-005, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350 on Starzinc 318" of 2012-03-27.
- Korea Conformity Laboratories (KCL) Technical Report No. KCL-PSPC-014, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350(New Version) on Galvany shopprimer IZ182(J)" of 2014-04-07.
- Korea Conformity Laboratories (KCL) Technical Report No. KCL-PSPC-015, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350(New Version) on SP-09" of 2014-04-07.
- Korea Conformity Laboratories (KCL) Technical Report No. KCL-PSPC-017, Rev. 00, "Ballast Tank Protective Coating Test of 2*160 µm KOREPOX EH2350(New Version) on Muki Z 2008" of 2014-04-07.
- KTR Technical Report No. KTR-PSPC-155, Rev. 00 "Ballast Tank Protective Coating Test of 320 µm KOREPOX EH2350 (New version) on IZ182(S)" of 2016-02-16.

Marking of product

Product/package shall be marked with *manufacturer's name and address*; **KCC Corporation (Ulsan Plant)**, and *type designation*; **KOREPOX EH2350**, 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 two (2) years (Certificate Retention) and at renewal after four (4) years (Certificate Renewal).

Job Id: **262.1-019385-1**
Certificate No: **TAK000008Y**

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