

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Protective Coating Systems - Seawater Ballast Tanks

with type designation(s)
Hempaprime Uni 760/Hempadur Quattro 17634

Issued to

Hempel A/S
Kgs. Lyngby, Hovedstaden, Denmark

is found to comply with

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 **2022-04-08**

This Certificate is valid until **2027-04-07**.

for **DNV**

DNV local station: **Copenhagen Fleet In Service**

Approval Engineer: **Enno Brück**

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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.

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

Hempaprime Uni 760 is a solvent free epoxy universal primer enabling extremely low VOC emissions.
Hempadur Quattro 17634 is an epoxy primer which cures to a hard and tough coating.

Manufactured by

Ju Young Industrial Co., Ltd. Under OEM with Hempel (Korea) Co., Ltd., 36, Yusangongdan 11-gil, Yangsan-si, Gyeongsangnam-do, Korea 626-230.

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.

Hempaprime Uni 760/Hempadur Quattro 17634 is approved for application on blast cleaned surfaces and on prequalified shop primed surfaces. The following shop primer has been prequalified:

- | | |
|--------------------------------|-------------------------|
| - Galvany Shopprimer IZ182 (J) | [KCC(Kunshan) Co., Ltd] |
| - Galvany Shopprimer IZ182 (S) | [KCC(Kunshan) 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 **Hempaprime Uni 760/Hempadur Quattro 17634** is changed to a degree deemed significant by DNV. If the formulation of the listed pre-qualified shop primer is changed to a degree deemed significant by DNV the 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 according to the procedures in IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC), ref. IACS UI SC223:

- Korea Testing & Research Institute, Report No. KTR-PSPC-414 Rev 0, "Ballast Tank Protection Test of 2 * 160µm Hempaprime Uni.760 17903/Hempadur Quattro 17634 on Galvany IZ182(J)", dated 2022-03-23.
- Korea Testing & Research Institute, Report No. KTR-PSPC-415 Rev 0, "Ballast Tank Protection Test of 2 * 160µm Hempaprime Uni.760 17903/Hempadur Quattro 17634 on Galvany IZ182(S)", dated 2022-03-23

Marking of product

Product/package shall be marked with *manufacturer's name and address*; Ju Young Industrial Co., Ltd. Under OEM with Hempel (Korea) Co., Gyeongsangnam-do, Korea, *type designation* Hempaprime Uni 760/Hempadur Quattro 17634, 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.



Job Id: **262.1-037570-1**
Certificate No: **TAK0000249**

Periodical Assessment (Certificate Retention) and renewal after 5 years (Certificate Renewal) shall be performed acc. DNV CP-0338.

END OF CERTIFICATE