



Certificate no.:
TAK00002GK

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Protective Coating Systems - Seawater Ballast Tanks**

with type designation(s)
Hempadur Quattro XO 17820

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.
DNV rules for classification – Ships

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.

Issued at **Hamburg** on **2025-04-25**

This Certificate is valid until **2030-04-24**.

for **DNV**

DNV local unit: **Denmark CMC**

Approval Engineer: **Gisle Hersvik**

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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 USD 300 000.

Product description

Hempadur Quattro XO 17820, two-component, epoxy-based coating for corrosion protection of steel surfaces.

Manufactured by

Hempel Paints (Emirates) LLC, P.O. Box 2000 Al Dhaid Road, Sajaa Industrial Area, Sharjah, Plot # 689/G, United Arab Emirates

DNV local station: Abu Dhabi

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

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.

Hempadur Quattro XO 17820 is approved for application on blast cleaned surfaces and on prequalified shop primed surfaces. The following shop primers have been prequalified:

- | | |
|--------------------------------|-------------------------------------|
| - Hempel's Shopprimer ZS 15890 | [Hempel A/S] |
| - Hempel's Shopprimer ZS 15820 | [Hempel A/S] |
| - CD-SG906 | [Haidun Coating (Ningbo) Co., Ltd.] |
| - Cerabond 2000 | [Chugoku Marine Paints, Ltd.] |
| - Sigmaweld 165 | [PPG Coatings] |
| - Interplate 8010 | [International Paint Ltd.] |
| - Interplate 997 | [International Paint Ltd.] |
| - Interplate 937 | [International Paint Ltd.] |
| - Interplate 855 | [International Paint 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 **Hempadur Quattro XO 17820** is 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.

Type Approval documentation

Tests carried out

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

- Test Report No. JX14217 from Test and Verifying Center for Ship Materials on Coatings and Paintings "Hempadur Quattro XO 17820 (2*160 µm) on Hempel's Shopprimer ZS 15890" of 2014-09-15.
- Test Report No. JX14296 from Test and Verifying Center for Ship Materials on Coatings and Paintings "Hempadur Quattro XO 17820 (2*160 µm) on Hempel's Shopprimer ZS 15820" of 2014-10-25.
- Test Report No. JX14208 from Test and Verifying Center for Ship Materials on Coatings and Paintings "Hempadur Quattro XO 17820 (2*160 µm) on CD-SG906 inorganic zinc silicate shop primer" of 2014-09-05.
- Technical Report No. KTR-PSPC-169 Rev. 00 from Korea Testing & Research Center (KTR) "Ballast Tank Protective Coating Test of 320 µm Hempadur Quattro XO XO 17820 on Cerabond 2000" of 2016-07-04.
- Technical Report No. KTR-PSPC-173 Rev. 00 from Korea Testing & Research Center (KTR) "Ballast Tank Protective Coating Test of 320 µm Hempadur Quattro XO XO 17820 on Sigmaweld 165" of 2016-07-04.
- Technical Report No. KTR-PSPC-203 Rev. 00 from Korea Testing & Research Center (KTR) "Ballast Tank Protective Coating Test of 320 µm Hempadur Quattro XO 17820 on Interplate 8010" of 2018-05-17.

- DNV GL Test Report No. 2020-5311 Rev. 00, "Crossover test of Hempadur Quattro XO 17820 on Interplate 997 Shop primer" of 2020-04-29.
- Test Report No. 2015-5581 Rev. 00 from DNV GL, "Crossover test of Hempadur Quattro XO 17820 on Interplate 937" of 2016-01-19.
- Test Report No. 2015-5593 Rev. 00 from DNV GL, "Crossover test of Hempadur Quattro XO 17820 on Interplate 855" of 2016-02-17.

Marking of product

Product/package shall be marked with *manufacturer's name and address*: **Hempel Paints (Emirates) LLC, UAE**, and *type designation*: **Hempadur Quattro XO 17820**, 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 assessments (for Certificate Retention / Certificate Renewal) shall be performed according to DNV-CP-0338.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

END OF CERTIFICATE