

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Protective Coating Systems - Seawater Ballast Tanks

with type designation(s)
SIGMAPRIME 700 and SIGMAPRIME 700 LT

Issued to

PPG Coatings Europe B.V.
Amsterdam, Netherlands

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 **2023-01-09**

This Certificate is valid until **2023-12-31**.

for **DNV**

DNV local unit: **Rotterdam**

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

SIGMAPRIME 700 and SIGMAPRIME 700 LT, 2-component epoxy based coatings for corrosion protection of steel surfaces.

Manufactured by

PPG Coatings SPRL/BVBA, Tweemontstraat 104, 2100 Deurne, Belgium

DNV local office: Antwerp

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.

SIGMAPRIME 700 and SIGMAPRIME 700 LT are approved for application on blast cleaned surfaces and on prequalified shop primed surfaces. The following shop primers have been prequalified on both products:

- | | |
|--|---|
| - SigmaWeld 165 | [PPG / Sigma Coatings] |
| - SigmaWeld 199 | [PPG / Sigma Coatings] |
| - W53-02 | [Taicang Lanyan Paint Co. Ltd.] |
| - TH-2 | [Jiangsu Yejian Anticorrosion Material Co., Ltd.] |
| - CD-SG906 | [Ningbo Haidun Coating Co., Ltd.] |
| - Galvany Shopprimer IZ 182(J) | [KCC Corp.] |
| - Cathozinc SP-09 type-2 (SP 700 only) | [Yung Chi Paint & Varnishes Mfg. Co., Ltd.] |
| - Cerabond 2000 | [Chugoku Marine Paints / Chugoku Samhwa Paints] |
| - Jotun Muki Z 2001 | [Jotun Paints Van Nam Co. Ltd.] |
| - SIGMAWELD™200 | [PPG, Ulsan Korea] |

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 **SIGMAPRIME 700** and **SIGMAPRIME 700 LT** 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 reported in the DNV Bergen, COT bv, EXOVA and CCS-DNV Technology Institute Reports are carried out according to the procedures in IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC), ref. IACS UI SC 223;

- DNV Bergen Report of 2007-12-20.
- DNV Bergen Report of 2007-12-20.
- COT bv Test Report No. LAB08-1301-REP, "Ballast Tank Coating Test of 2 x 160 µm SigmaPrime 700 on TH-2 Zinc Silicate Shop Primer" of 2008-12-19.
- COT bv Test Report No. LAB00-1307-REP, "Ballast Tank Coating Test of 2 x 160 µm SigmaPrime 700 LT on TH-2 Zinc Silicate Shop Primer" of 2008-12-19.
- COT bv Test Report No. LAB08-1300-REP, "Ballast Tank Coating Test of 2 x 160 µm SigmaPrime 700 on W53-02 Inorganic Zinc Rich Shop Paint" of 2008-12-19.
- COT bv Test Report No. LAB08-1306-REP, "Ballast Tank Coating Test of 2 x 160 µm SigmaPrime 700 LT on W53-02 Inorganic Zinc Rich Shop Paint" of 2008-12-19.
- CCS-DNV Technology Institute Technical Report No. CDTI-CL-11B060, "Ballast Tank Coating Test of 2 * 160 µm Epoxy-based SigmaPrime 700 on CD-SG906 Inorganic Zinc Shop Primer" of 2011-05-18.

- CCS-DNV Technology Institute Technical Report No. CDTI-CL-11B061, "Ballast Tank Coating Test of 2 * 160 µm Epoxy-based SigmaPrime 700LT on CD-SG906 Inorganic Zinc Shop Primer" of 2011-05-18.
- EXOVA Test Report No. N802383, Issue No. 04 "Ballast Tank Coating Test SigmaPrime 700 on KCC Galvany IZ 182(J)" of 2010-07-13.
- EXOVA Test Report No. N802387, Issue No. 03 "Ballast Tank Coating Test SigmaPrime 700 LT on KCC Galvany IZ 182(J)" of 2010-07-14.
- CCS-DNV Technology Institute Technical Report No. CDTI-CL-09A017, "Ballast Tank Coating Test of Epoxy Paint SigmaPrime 700 on Cathozinc SP-09 Shop Primer Type 2" of 2009-10-16.
- CCS-DNV Technology Institute Technical Report No. CDTI-CL-10B005, "Ballast Tank Coating Test of 2x160 µm Epoxy-based SigmaPrime 700 on Cerabond 2000 Inorganic Zinc Shop Primer" of 2010-03-25.
- CCS-DNV Technology Institute Technical Report No. CDTI-CL-10B006, "Ballast Tank Coating Test of 2x160 µm Epoxy-based SigmaPrime 700LT on Cerabond 2000 Inorganic Zinc Shop Primer" of 2010-03-25.
- COT bv, Test Report No. LAB08-1268-REP, "Ballast Tank Coating Test of 2x160 µm SigmaPrime 700 on Jotun Muki Z 2001.
- COT bv, Test Report No. LAB08-1269-REP, "Ballast Tank Coating Test of 2x160 µm SigmaPrime 700 LT on Jotun Muki Z 2001.

Marking of product

Product/package shall be marked with *manufacturer's name, place of production* **PPG Coatings SPRL/BVBA** Belgium and *type designation*; **SIGMAPRIME 700** and **SIGMAPRIME 700 LT**, 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