



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. K-3867
This Certificate consists of 3 pages

This is to certify that the
Protective Coating Systems - Seawater Ballast Tanks


with type designation(s)
MTM Thermal Sprayed Zinc Coating

Manufactured by
MTM METALIZING PTE LTD
SINGAPORE, Singapore

is found to comply with
Det Norske Veritas' Type Approval Programme 1-602.1, 2008, Protective Coating Systems
IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC)
IACS Procedural Requirement No. 34
IACS Unified Interpretations SC223

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.

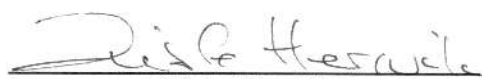
Place and date
Høvik, 2009-10-12
for DET NORSKE VERITAS AS


Helge Drange
Head of Section



Local Office
DNV Singapore

This Certificate is valid until
2013-12-31


Gisle Hersvik
Surveyor

Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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Product description

MTM Thermal Sprayed Zinc Coating.

The coating system shall be applied with INTMETL 888 ("Red Devil") - an International Metalizing Corporation patented, high deposition field portable electric arc metalizing machine.

The "IMC Metalizing Specifications" from International Metalizing & Coatings, Inc. shall be followed.

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.

MTM Thermal Sprayed Zinc Coating is approved for application on blast cleaned surfaces.

Surface preparation and coating system 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, application and the environmental conditions.

The Type Approval Certificate is invalid if the formulation of the coating system is changed to a degree deemed significant by Det Norske Veritas.

Type Approval documentation

1. Emails from DNV Singapore and MTM Metalizing of 2009-10-12.
2. Email from DNV Singapore of 2009-09-08, incl. Survey report of 2009-08-25 from DNV Singapore, "IMC Metalizing Specifications" from International Metalizing & Coatings, Inc., IMC Declaration letter of 2009-02-25, Technical Data for INTMETL 888, etc.
3. Emails from DNV Singapore of 2009-08-25, 2009-07-08 and 2009-07-01, incl.
 - Email from MTM Metalizing of 2009-07-08 (with enclosures) and
 - Technical Report No. CDTI-CL-09A012, "Ballast Tank Coating Test of Thermal Sprayed Zinc on Bare Steel Substrate" from CCS-DNV Technology Institute of 2009-06-01.



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Tests carried out

Type testing carried out according to **Type Approval documentation**. The Test Report from CCS-DNV Technology Institute, Shanghai, China shows that **MTM Thermal Sprayed Zinc Coating** complies with IMO Resolution MSC.215(82) Performance Standard for Protective Coatings (PSPC), ref. IACS PR No. 34 and IACS UI SC223, as an alternative system.

Marking of product

Product/package shall be marked/declared with *manufacturer's name and address*; **MTM Metalizing Pte Ltd, Singapore**, *type designation*; **MTM Thermal Sprayed Zinc Coating** and *date of production/batch number*.

Certificate Retention/Renewal Survey

The scope of the Retention/Renewal Survey 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.

Survey to be performed after two (2) years (Certificate Retention Survey) and at renewal after four (4) years (Certificate Renewal Survey).

The main elements of the survey are:

- 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 Type Approval Certificate.

END OF CERTIFICATE