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Standard
Test Method

Offshore Platform Ballast Water Tank Coating System Evaluation

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Foreword

This standard specifies test methods to evaluate ballast water tank coating systems on offshore platforms, such as tension leg platforms (TLPs), semi-submersible platforms, or floating production and storage offloading systems (FPSOs). This standard is intended for use by facility owners and coating manufacturers.

This standard was prepared by NACE Task Group 263 on Offshore Ballast Water Tank Coatings: Standard Test Method. This Task Group is administered by Specific Technology Group (STG) 03 on Coatings and Linings, Protective: Immersion and Buried Service. It is also sponsored by STG 33 on Oil and Gas Production—Nonmetallics and Wear Coatings (Metallic). This standard is issued by NACE International under the auspices of STG 03.

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Contents

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Section 1: General

1.1 This NACE standard test method covers both new construction and maintenance ballast water tank coating systems for tension leg platforms (TLPs), semi-submersible platforms, and floating production and storage offloading systems (FPSOs).

1.2 Six test methods—cathodic disbondment, seawater immersion resistance, dimensional stability, aging stability, edge retention, and thick-film cracking—are used to evaluate these coating systems. The facility owners shall specify the acceptance criteria according to their specific requirements.

1.3 The ballast water temperature in a TLP or semi-submersible platform is normally below 25°C (77°F) and can be much higher in a FPSO, depending on crude oil temperatures. Therefore, FPSOs require one additional hot/wet cycling test.

Section 2: Definitions

Cathodic Disbondment: The destruction of adhesion between a coating and the coated surface caused by products of a cathodic reaction.

Coating System: The complete number and types of coats applied to a substrate in a predetermined order.

Edge Retention: The ratio of dry-film thickness (DFT) of the entire multicoat coating system at peak to average DFT on both flat surfaces of a sharp angle bar. This is a measurement of a coating's ability to retain film coverage over sharp corners.

Fingerprinting: Method of identifying a coating material through laboratory analyses of coating density, solids content, pigment content, etc. Infrared (IR) spectroscopy is often used in the analyses.

Plural-Component Spraying: An application method that automatically proportions and mixes two or more components of a coating material in the process of delivering them to the spray gun. Plural-component spray equipment is used to apply coatings with a pot life that is too short to permit mixing and application by conventional air and airless spray equipment.

Pot Life: The elapsed time within which a coating can be effectively applied after all components of the coating have been thoroughly mixed.

Room Temperature: An indoor temperature generally between 20 and 25°C (68 and 77°F).

Shelf Life: The amount of time a coating or other material remains in usable condition.

Synthetic Seawater: An aqueous solution containing inorganic salts in proportions and concentrations representative of ocean water (also known as "substitute ocean water").

Section 3: Coating Materials

3.1 General

The coating system performance shall pass the acceptance criteria specified by facility owners according to their specific requirements. If the coating formulation is changed after the qualification test, the new coating system shall be requalified according to the latest revision of this standard.

3.2 Required Product Information

When each coating system is submitted to qualification testing the coating manufacturer shall provide the following information. This information shall be included as part of the test report:

(1) Product data sheet
(2) Material safety data sheet (MSDS)
(3) Fingerprinting—The requirements for fingerprinting for each coat of the multicoat coating system are listed in Table 1.