

Liquid-Applied Coating Performance Test Methods for Offshore Structures

©2022 Association for Materials Protection and Performance (AMPP). All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise) without the prior written permission of AMPP.

Liquid-Applied Coating Performance Test Methods for Offshore Structures

This AMPP standard represents a consensus of those individual members who have reviewed this document, its scope, and provisions. Its acceptance does not in any respect preclude anyone, whether he or she has adopted the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not in conformance with this standard. Nothing contained in this AMPP standard is to be construed as granting any right, by implication or otherwise, to manufacture, sell, or use in connection with any method, apparatus, or product covered by Letters Patent or as indemnifying or protecting anyone against liability for infringement of Letters Patent. This standard represents minimum requirements and should in no way be interpreted as a restriction on the use of better procedures or materials. Neither is this standard intended to apply in all cases relating to the subject. Unpredictable circumstances may negate the usefulness of this standard in specific instances. AMPP assumes no responsibility for the interpretation or use of this standard by other parties and accepts responsibility for only those official AMPP interpretations issued by AMPP in accordance with its governing procedures and policies which preclude the issuance of interpretations by individual volunteers.

Users of this AMPP standard are responsible for reviewing appropriate health, safety, environmental, and regulatory documents and for determining their applicability in relation to this standard prior to its use. This AMPP standard may not necessarily address all potential health and safety problems, or environmental hazards associated with the use of materials, equipment, and/or operations detailed or referred to within this standard. Users of this AMPP standard are also responsible for establishing appropriate health, safety, and environmental protection practices, in consultation with appropriate regulatory authorities, if necessary, to achieve compliance with any existing applicable regulatory requirements prior to the use of this standard.

CAUTIONARY NOTICE: AMPP standards are subject to periodic review and may be revised or withdrawn at any time in accordance with AMPP technical committee procedures. AMPP requires that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of initial publication and subsequently from the date of each reaffirmation or revision. The user is cautioned to obtain the latest edition. Purchasers of AMPP standards may receive current information on all standards and other AMPP/NACE/SSPC publications by contacting AMPP Customer Support, 15835 Park Ten Place, Houston, Texas 77084-1145 (Tel: +1-281-228-6200, email: customersupport@ampp.org).

Document History:

2022-10-11: Approved by AMPP Standards Committee (SC) 03, External Coatings – Buried & Immersed

AMPP values your input. To provide feedback on this standard, please contact: standards@ampp.org

AMPP TM21612-2022

©2022 Association for Materials Protection and Performance (AMPP). All rights reserved.

Liquid-Applied Coating Performance Test Methods for Offshore Structures

Foreword, Scope, Rationale	4
Referenced Standards and Other Consensus Documents	5
Section 1 General	6
Section 2 Definitions	6
Section 3 Coating Materials	7
3.1 General	7
3.2 Required Product Information	7
Section 4 Test Solutions	8
Section 5 Test Panels	8
5.1 Test Panel Geometry, Size, Substrate Materials, and Minimum Quantity	8
5.2 Surface Preparation	9
Section 6 Coating Application	9
Section 7 Test Methods	10
7.1 Rust Creepage Resistance Test	10
7.2 Edge Coverage (Retention) Test	11
7.3 Thermal-Cycling Resistance Test	12
7.4 Seawater Immersion Resistance Test	13
7.5 Cathodic Disbondment Test	14
7.6 Impact, Abrasion and Coefficient of Friction (COF) Test for Deck Floor Coatings	17
Other Referenced Documents	17
Appendix A Comparison between AMPP TM21612 and Other AMPP Offshore Platform Coating Test Standards (Nonmandatory)	18
Appendix B Comparison between ISO 12944-9 and AMPP TM21612 (Nonmandatory)	20
Figures	
Figure 1 90° Aluminum Angle for Edge Coverage Test	11
Figure 2 Steel T-bar and Angle Bar for Thermal Cycling Test	13
Tables	
Table 1 Finishing of Coating Materials	8
Table 2 Test Specimen Geometry, Size, Substrate Materials, and Minimum Quantity	9
Table 3 Test Methods for Five Coatings Categories of Offshore Structures	10
Table A1 Test Methods Listed in AMPP Standards	19
Table A2 Improvements Made in TM21612	19
Table B1 Atmospheric Coatings	20
Table B2 Immersion Coatings	20

Foreword

This AMPP standard provides a series of effective and economical test methods to evaluate the performance of candidate offshore platform new construction and maintenance coatings. The testing protocol is established to simulate the offshore environment and based on the major failure modes observed on offshore platforms. The test results will rank the candidate coating systems for end-users to select and coating manufacturers to develop reliable coating systems.

Scope

This standard contains requirements for a testing protocol that uses established laboratory test methods to evaluate the performance of liquid-applied coating systems for the atmospheric zone, deck floor, splash zone, exterior seawater immersion zone, and ballast tanks of offshore structures. It is intended for use by facility owners and coating manufacturers.

Rationale

This standard provides an effective test protocol to evaluate the performance of candidate coating systems for offshore structures in 12 weeks, which is a much shorter test period than the 25 weeks required by ISO 12944-9.

The results of tests described in this AMPP standard can help offshore facility owners to select proper coating systems to protect their offshore assets and can also guide the coating manufacturers to develop proper coating systems to improve the integrity of the offshore structures.