



Standard Practice for Evaluating Biofouling Resistance and Physical Performance of Marine Coating Systems¹

This standard is issued under the fixed designation D 6990; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This method establishes a practice for evaluating degree of biofouling settlement on and physical performance of marine coating systems when panels coated with such coating systems are subjected to immersion conditions in a marine environment. Guidance for preparation or exposure and handling of test specimens can be found in related ASTM standards as noted below (see Section 2).

1.2 This practice and related exposure methodologies are designed as tools for the relative assessment of coating performance, and in no way are to be used as an absolute indicator of long-term performance under all conditions and in all environments. There can be high variability among and within exposure sites with respect to water quality and population or species of fouling organisms, and coating performance may vary with these and other properties.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* A specific hazard statement is given in Section 6.

2. Referenced Documents

2.1 ASTM Standards:²

Recommended ASTM Methods and Practices for evaluation of antifouling coatings via panel exposure under a variety of exposure conditions:

- D 3623 Test Method for Testing Antifouling Panels in Shallow Submergence
- D 4938 Test Method for Erosion Testing of Antifouling Paints Using High Velocity Water

D 4939 Test Method for Subjecting Marine Antifouling Coatings to Biofouling and Fluid Shear Forces in Natural Seawater

D 5479 Practice for Testing Biofouling Resistance of Marine Coatings Partially Immersed

D 5618 Test Methods for Measurement of Barnacle Adhesion Strength in Shear

2.2 ASTM Standards for Reference Only:²

The following ASTM standards may provide the reader with useful information on evaluating physical performance of marine coating systems. The method references are provided only for the convenience of the reader. The reader is not required to specifically apply these methods to the ratings and reporting assigned under this method, but is encouraged to utilize the descriptions, definitions, and pictures provided in the methods to assist in understanding coating physical performance.

- D 16 Terminology for Paint, Related Coatings, Materials, and Applications
- D 660 Test Method for Evaluating Degree of Checking of Exterior Paints
- D 661 Test Method for Evaluating Degree of Cracking of Exterior Paints
- D 662 Test Method for Evaluating Degree of Erosion of Exterior Paints
- D 714 Test Method for Evaluating Degree of Blistering of Paints
- D 772 Test Method for Evaluating Degree of Flaking (Scaling) of Exterior Paints
- D 4538 Terminology Relating to Protective Coating and Lining Work for Power Generation Facilities

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *biofilm*, *n*—matrix-enclosed populations of microorganisms adherent to each other or to surfaces, or both, or interfaces.

3.1.2 *biofouling adhesion*, *n*—qualitative force required for the successful and complete removal of marine fouling attached to the antifouling coating surface (for example, reference Test Methods D 5618).

¹ This practice is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.45 on Marine Coatings.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.