



Designation: D6990 – 20

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

This standard is issued under the fixed designation D6990; 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 practice 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 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. A specific hazard statement is given in Section 6.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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.

Current edition approved Sept. 1, 2020. Published September 2020. Originally approved in 2003. Last previous edition approved in 2011 as D6990 – 05 (2011) which was withdrawn in January 2020 and reinstated in September 2020. DOI: 10.1520/D6990-20.

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:

D3623 Test Method for Testing Antifouling Panels in Shallow Submergence

D4938 Test Method for Erosion Testing of Antifouling Paints Using High Velocity Water

D4939 Test Method for Subjecting Marine Antifouling Coating to Biofouling and Fluid Shear Forces in Natural Seawater

D5479 Practice for Testing Biofouling Resistance of Marine Coatings Partially Immersed

D5618 Test Method for Measurement of Barnacle Adhesion Strength in Shear (Withdrawn 2020)³

G141 Guide for Addressing Variability in Exposure Testing of Nonmetallic Materials

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 or quantitative force required for the successful and complete removal of marine fouling attached to the antifouling coating surface (for example, reference Test Method D5618 for barnacles).

3.1.3 *corrosion eruptions*, *n*—build up of oxides, exiting through protective paint film.

3.1.4 *damage*, *n*—limited destruction of portions of paint film due to impact with a foreign article.

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.

³ The last approved version of this historical standard is referenced on www.astm.org.