



Designation: D6486 – 23

Standard Practice for Short Term Vehicle Service Exposure of Automotive Coatings¹

This standard is issued under the fixed designation D6486; 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 covers the protocol for vehicle service exposure testing of automotive coatings. Such exposure testing is valuable for the verification of the performance of automotive coatings and correlation with laboratory test data. Vehicle service exposure is intended to provide short term (2 to 20 weeks) exposure to the stress factors associated with vehicle operation. Factors included are scratch, mar, impact, stone chipping, insect impact, bird dropping, tree sap and staining, environmental fallout, etc.

NOTE 1—Vehicle service exposure is not intended to provide the conditions that are needed for characterizing the long term effects of weathering or corrosion exposure.

1.2 The exposure conditions are produced by the placement of multiple test panels of automotive finishes on automotive test fleets that traverse a defined road course. Exposure to the operating environment can be 20 h/day, 7 days/week allowing for accumulation of over 100 000 miles in 10 weeks of exposure.

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.*

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 D01.55 on Factory Applied Coatings on Preformed Products.

Current edition approved July 1, 2023. Published July 2023. Originally approved in 1999. Last previous edition approved in 2017 as D6486 – 01 (2017). DOI: 10.1520/D6486-23.

2. Referenced Documents

2.1 ASTM Standards:²

- D523 Test Method for Specular Gloss
- D609 Practice for Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products
- D714 Test Method for Evaluating Degree of Blistering of Paints
- D823 Practices for Producing Films of Uniform Thickness of Paint, Coatings and Related Products on Test Panels
- D1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers
- D1400 Test Method for Nondestructive Measurement of Dry Film Thickness of Nonconductive Coatings Applied to a Nonferrous Metal Base (Withdrawn 2006)³
- D3170 Test Method for Chipping Resistance of Coatings
- D3359 Test Methods for Rating Adhesion by Tape Test
- D5767 Test Method for Instrumental Measurement of Distinctness-of-Image (DOI) Gloss of Coated Surfaces
- D7091 Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals

2.2 U.S. Federal Standard:

- DOT NHTSA Reg. #49 CFR Part 575⁴

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *blistering, n*—formation in the film of dome-shaped, liquid- or gas-filled projections resulting from local loss of adhesion and lifting of the film from the previously applied coating or the substrate.

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.

⁴ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.