



Designation: D4400 – 99 (Reapproved 2012)

Standard Test Method for Sag Resistance of Paints Using a Multinotch Applicator¹

This standard is issued under the fixed designation D4400; 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.

This standard has been approved for use by agencies of the Department of Defense.

INTRODUCTION

The multinotch applicator used in this test method is a drawdown blade with a series of notches of successively higher clearance, referred to as the Anti-Sag Meter. See Fig. 1 and Fig. 2 for a representative diagram and photograph. The numerical value for sag resistance obtained with this instrument is referred to as the Anti-Sag Index.

Anti-Sag Meters are made with several clearance ranges for different types of coatings (see 5.1 and Table 1). In developing this standard the task group used an instrument with a range from 4 to 24 mils, but the method is applicable to any clearance range, and results using instruments with overlapping ranges correlate and have equal validity.

The basic method was developed in 1962² and is referenced in U.S. Federal specifications TT-E-508, TT-E-506, and TT-P-1511.

A preshear program is essential for a drawdown sag test to duplicate the breakdown in structure that occurs when thixotropic paints are applied by brushout or other practical application methods. The procedures therefore include the preshearing of paints just prior to making test applications.

1. Scope

1.1 This test method covers the laboratory determination of the sag resistance of aqueous and nonaqueous liquid coatings at any level of sag resistance.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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.*

¹ This test method is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.42 on Architectural Coatings.

Current edition approved May 15, 2012. Published May 2012. Originally approved in 1984. Last previous edition approved in 2007 as D4400 – 99 (2007). DOI: 10.1520/D4400-99R11.

² "Design of an Improved Sag Tester," *Official Digest*, Vol 34, No. 453, October 1962.

2. Referenced Documents

2.1 ASTM Standards:³

D2196 Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer

2.2 U.S. Federal Specifications:⁴

Fed. Spec. TT-E-508 Alkyd semi-gloss enamel

Fed. Spec. TT-E-506 Alkyd gloss enamel

Fed. Spec. TT-P-1511 Interior latex gloss and semi-gloss finishes

3. Summary of Test Method

3.1 After preshearing, the coating is applied to a test chart with a multinotch applicator. The charts are immediately hung vertically with the drawdown stripes horizontal, similar to rungs of a ladder, with the thinnest stripe at the top. After drying in this position, the drawdown is examined and rated for sagging. A typical sag pattern obtained by this procedure is shown in Fig. 3.

³ 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.

⁴ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://www.dodssp.daps.mil>.

4. Significance and Use

4.1 Evaluation of sag resistance is essential in quality control for both producers and purchasers of coatings. Practical application tests are poor in reproducibility, while viscometric

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[ASTM D4400-99\(2012\)](#)

<https://standards.itih.ai/catalog/standards/sist/48a74f9a-8213-4b78-8c56-42eb405e75ae/astm-d4400-992012>