



Standard Test Method for Solvent and Fuel Resistance of Traffic Paint¹

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1. Scope

1.1 This test method describes a laboratory test for determining the resistance of a dried film of traffic paint to the action of a specified hydrocarbon solvent or gasoline fuel test fluid.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D471 Test Method for Rubber Property—Effect of Liquids

2.2 *Federal Standard:*

TT-S-735 Standard Test Fluids for Hydrocarbons³

3. Summary of Test Method

3.1 The test paint is applied to a specified, properly prepared, tin panel. After aging, the coated panel is immersed in the hydrocarbon test fluid for a specified period of time at a specified temperature. The paint is examined for blistering, wrinkling, and loss of adhesion immediately upon removal and for complete hardness after a specified recovery time.

4. Significance and Use

4.1 Traffic paints must have good resistance to motor oil and fuel drippings on the highway. This test method describes the

procedure necessary to measure the resistance of traffic paint to reference test fluids in order to simulate this type of action.

5. Apparatus

5.1 *Tin Panel*—Panels shall be cut from bright tin plate weighing not more than 25 g and not less than 19 g/dm² (0.51 to 0.39 lb/ft²). The panel should be about 75 by 130 mm (3 by 5 in.).

5.2 *Film Applicator*, which will produce a 3 or 6-mil (76 or 142- μ m) (0.003 or 0.006-in.) wet film thickness.

6. Reagents and Materials

6.1 *Test Liquid*—The testing liquid shall be specified by the purchaser and shall be selected from the following, dependent on the paint tested:

6.1.1 Type I of Federal Specification TT-S-735 which is the same as ASTM Reference Fuel A (Test Method **D471**).

6.1.2 Type III of Federal Specification TT-S-735 which is the same as ASTM Reference Fuel B (Test Method **D471**).

7. Procedure

7.1 Clean the tin panels thoroughly with a suitable solvent, and buff lightly with fine steel wool. Prepare at least 3 panels for each paint to be tested.

7.2 Examine the test paint, remove any skins that are present, stir with a paddle to loosen any settled pigment, and mix thoroughly.

7.3 Draw down the material on the panels using a film applicator that will produce a 76 or 142- μ m (3 or 6-mil) wet film as specified by the purchaser.

7.4 Air dry the coating for the time specified by the purchaser (usually 90 h) and then immerse the panels to half their length in the test liquid contained in a covered glass beaker at the temperature specified by the purchaser (generally 21 to 32°C (70 to 90°F)). Use a separate beaker for each paint tested.

7.5 At the end of the specified time (usually 4 to 18 h, depending on the type of paint) remove the panels and examine immediately for blistering, wrinkling, and loss of adhesion.

7.6 Allow the panels to dry at normal temperatures for the purchaser-specified time (generally 24 h), and examine for film defects and softening in comparison with the unimmersed portion of the panels.

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 **D01.44** on Traffic 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.

³ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://dodssp.daps.dla.mil>.

8. Report

8.1 Report whether blistering, wrinkling, or loss of adhesion is evident immediately upon removal of panel from the test fluid as determined in 7.5.

8.2 Report whether any softening of the film is evident after the panel has recovered as determined in 7.6.

9. Precision and Bias

9.1 *Precision*—No statement of precision, in terms of percentages, can be made, although repeatability and reproducibility are exceptionally good.

10. Keywords

10.1 solvent/fuel resistance test; traffic paint

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