

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

MATERIALS PROCEDURE

PAINT TESTING METHODS

1. PURPOSE

- 1.1 To set forth the standard test methods to be used in analyzing paint.

2. REFERENCED DOCUMENTS

- 2.1 American Society for Testing and Materials (ASTM) Section 6, Paints, Related Coatings, and Aromatics.
- 2.2 Federal Test Methods Standard Number 141D, Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing.

3. TESTING METHODS

- 3.1 Table 1, in this MP, is a list of the paint testing methods. It contains the following information:
- 3.1.1 Test - This is the name of each test.
- 3.1.2 Reference Document - This is the referenced document where you can find each test.
- 3.1.3 Test Method Number - This is the number assigned to each federal test method.

4. GENERAL INFORMATION

- 4.1 Adhesion - (Film thickness greater than 5 mils (125 μ m)) ASTM D3359 (Method A)
- Adhesion - (Film thickness 5 mils (125 μ m) or less) ASTM D3359 (Method B)
- 4.2 Test Panel Preparation
- 4.2.1 Panels for testing shall meet the requirements of Federal Test Method 2011.
- 4.2.2 Panels that receive hot-dip galvanizing should be blast clean to near white finish (SSPC-SP10) and galvanized in accordance with the AASHTO M111. Average galvanized coating thickness should be 1.8 Mils.

- 4.2.3 Coating applied over galvanizing will be done in accordance with the manufacturer's product data sheets. If the data sheet does not show how to apply the coating over galvanizing, then the manufacturer shall furnish this information in writing. Failure to provide this information could result in incorrect preparation of the galvanized surface, thus resulting in failure of the paint system.
- 4.2.4 All coatings shall be applied at the normal field application thickness. Primers will be applied over panels that have been cleaned to a near white (SSPC-SP10) condition. All coatings, which are part of a coating system, shall be applied over the previous coating in the system.
- 4.3 Curing Conditions
- 4.3.1 All coatings except zinc primers shall be cured seven days prior to testing. The curing will be done in the laboratory under normal laboratory conditions of temperature and humidity.
- 4.3.2 Zinc primers shall be cured, as in 4.3.1, except the cure period will be 10 days.
- 4.3.3 All coatings which require chemical resistance testing, will be cured an extra 24 hours at 221°F - 230°F (105 °C - 230 °C).
- 4.4 Chemical analyses of pigments shall be conducted by ASTM test methods. In cases where no ASTM test method is available, Federal test methods or a mutually agreed procedure shall be used.
- 4.5 Any test method not included in Table I shall be conducted according to ASTM, Federal Test or mutually agreed to procedures.
- 4.6 Initial approval of a paint requires that all specified tests be conducted. Subsequent batches, at the Division's option, may have randomly selected tests conducted.


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TABLE 1

	Test	Referenced Document	Test Methods
1.	Accelerated Weathering	2.1	G53
2.	Adhesion (Film thickness 5 mils (125 µm) or less)	2.1	D3358 (Method B)
3.	Adhesion (Film thickness greater than 5 mils (125 µm))	2.1	D3358 (Method A)
4.	Chemical Analysis of Pigments	4.4	MP 711.00.20
5.	Chemical Resistant (Spot Test)	2.1	D1308
6.	Coarse Particles	2.1	D185
7.	Color	2.1	D2244
8.	Compatibility	2.2	4203
9.	Condition of Container	2.2	3011
10.	Consistency (Viscosity)	2.1	D562
11.	Density (Weight/Gallon)	2.1	D1475
12.	Drying (Traffic Paint - No Pickup)	2.1	D711
13.	Drying Time	2.1	D1640
14.	Fineness of Grind	2.1	D1210
15.	Flexibility	2.2	6221
16.	Infrared Scan	2.1	D2621
17.	Leafing	2.1	D480
18.	Nonvolatile Vehicle	2.2	4051
19.	Pigment - Vehicle	2.2	4021
20.	Salt Spray	2.1	B117
21.	Sampling	2.1	D3925
22.	Skinning	2.2	3021
23.	Specular Gloss (60°)	2.1	D523
24.	Storage Stability	2.1	D1849
25.	Total Solids	2.1	D2369
26.	Water	2.2	4081
27.	Working Properties	2.2	4541, 4321, 4331