



Standard Specification for Reinforced Liquid Coating Encapsulation Products for Leaded Paint in Buildings¹

This standard is issued under the fixed designation E 1797; 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 specification covers minimum material performance requirements and laboratory test procedures for reinforced liquid coating encapsulation products (single- or multiple-coat systems) for leaded paint in buildings. The test methods and practices included are listed in Table 1. Specifications for non-reinforced liquid coating encapsulation products are provided in Specification E 1795.

1.2 This specification does not address the selection of an encapsulation product for specific use conditions. Specific use conditions may require performance values other than those stated in this specification. See Specification E 1796 for guidance.

1.3 This specification does not cover the use of encapsulation products on industrial steel structures nor residential exterior coated metal surfaces because no corrosion control requirements are included.

1.4 This specification applies to any liquid-applied product incorporating reinforcement materials as part of the system. Reinforcement materials are continuous fabric or mesh and are applied in the field. These materials are typically applied between a base and top coat. These products are used to encapsulate a leaded painted surface with the intent of reducing human exposure to lead in paint.

1.5 Reinforced liquid coating encapsulation products rely primarily on adhesion and not on mechanical fasteners. Mechanical fasteners shall not be used in testing these products for performance in accordance with this specification.

1.6 Except for scrub resistance, volatile organic compound (VOC) content and permeability, which are performed on the top coat only, the laboratory testing specified in this specification shall be performed on the entire encapsulation product system, whether single or multiple coat, as applied in the field. An encapsulation product shall be comprised of all principal components in the system, including the base and top coats, the reinforcement material, and primer, if specified, for field application. Except for dry abrasion and adhesion testing, where specialty primers may be used for flash rust resistance,

primers shall not be used solely for product performance testing in accordance with this specification.

1.7 The results of the test methods included in this specification will not necessarily predict field performance.

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

1.9 *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:

- D 16 Terminology for Paint and Related Coatings, Materials, and Applications²
- D 823 Practices for Producing Films of Uniform Thickness of Paint, Varnish, and Related Products on Test Panels²
- D 1005 Test Methods for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers²
- D 1186 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base²
- D 1212 Test Methods for Measurement of Wet Film Thickness of Organic Coatings²
- D 1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes³
- D 1475 Test Method for Density of Paint, Varnish, Lacquers, and Related Products²
- D 1653 Test Methods for Water Vapor Transmission of Organic Coating Films²
- D 2486 Test Method for Scrub Resistance of Wall Paints³
- D 2794 Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)²
- D 3273 Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber²
- D 3274 Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation²

¹ This specification is under the jurisdiction of ASTM Committee E-6 on Performance of Buildings and is the direct responsibility of Subcommittee E06.23 on Lead Hazards Associated With Buildings.

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² Annual Book of ASTM Standards, Vol 06.01.

³ Annual Book of ASTM Standards, Vol 06.02.

TABLE 1 Alphabetical List of Test Methods and Practices

Test Method	Section	ASTM Test Method or Practice	Federal Test Method Std. No. 141C
Adhesion	10.2	D 4541	
Aging	10.9		
Chalking	10.8	D 4214	
Condition in container	6.2		3011
Density or weight per gallon	6.3	D 1475	
Dry abrasion resistance	10.3	D 4060	
Dry-film thickness	7.1.3	D 1005, D1186	
Film application on test panels	7.1.3	D 823	
Glass panel preparation	9.1.5		2021
Impact resistance	10.1	D 2794	
Mildew resistance	10.11	D 3273, D3274	
Paintability	10.12.1	D 3359	
Repairability	10.12.2	D 4541	
Sampling	6.3	E 300	
Scrub resistance	10.10	D 2486	
Standard laboratory conditions	7.1.4	D 3924	
Steel Panel Preparations	9.1.4		2011
Surface burning characteristics	10.5	E 84	
Tin panel preparation	7.1.2		2012
VOC content	10.7	D 3960	
Water and chemical resistance	10.5	D 1308	
Water vapor transmission	10.4	D 1653	
Weathering	10.8	G 53	

- D 3359 Test Methods for Measuring Adhesion by Tape Test²
- D 3924 Specification for Standard Environment for Conditioning and Testing Paint, Varnish, Lacquers, and Related Materials²
- D 3960 Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings²
- D 4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser²
- D 4214 Test Methods for Evaluating Degree of Chalking of Exterior Paint Films²
- D 4414 Practice for Measurement of Wet Film Thickness by Notch Gages²
- D 4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion-Testers³
- D 4708 Practice for Preparation of Free Films of Organic Coatings²
- E 84 Test Method for Surface Burning Characteristics of Building Materials⁴
- E 300 Practice for Sampling Industrial Chemicals⁵
- E 1605 Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures⁶
- E 1795 Specification for Non-Reinforced Liquid Coating Encapsulation Products for Leaded Paint in Buildings⁶
- E 1796 Guide for Selection and Use of Liquid Coating Encapsulation Products for Leaded Paint in Buildings⁶
- G 53 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials⁷

⁴ Annual Book of ASTM Standards, Vol 04.07.
⁵ Annual Book of ASTM Standards, Vol 15.05.
⁶ Annual Book of ASTM Standards, Vol 04.11.
⁷ Annual Book of ASTM Standards, Vol 14.04.

- 2.2 Federal Test Methods Standard I41C:⁸
- 2011 Preparation of Steel Panels
- 2012 Preparation of Tin Panels
- 2021 Preparation of Glass Panels
- 3011 Condition in Container

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminologies D 16 and E 1605.

4. Classification

4.1 *Type I: Interior Use Only*—Type I defines encapsulation products intended for interior use. These products shall meet all the requirements of this specification except those of 5.9 and 5.9.1.

4.2 *Type II: Exterior Use Only*—Type II defines encapsulation products intended for exterior use. These products shall meet all the requirements of this specification except those of 5.9.2.

4.3 *Type III: Either Exterior or Interior Use*—Type III defines encapsulation products intended for either interior or exterior use. These products shall meet all the requirements of this specification.

5. Performance Requirements

5.1 *Impact Resistance*—Minimum performance is 9 J (80 in.-lb) direct impact (that is, coating side up) without cracking to substrate determined by visual observation using 5× magnification and in accordance with 10.1.

5.2 *Adhesion*—Minimum performance is 700 kPa (100 psi) when determined in accordance with 10.2. The mode of failure, whether to substrate or reinforcement material, shall be recorded.

5.3 *Dry Abrasion Resistance*—Minimum performance is no abrasion completely through the reinforcement in any place and the reinforcement shall totally fill all voids in the reinforcement after 1000 cycles when determined in accordance with 10.3.

5.4 *Water Vapor Transmission*—Test results shall be reported in accordance with 10.4.

NOTE 1—Minimum performance depends on architectural and use conditions. (See 1.2.)

5.5 Water and Chemical Resistance:

5.5.1 *Spot Test*—For the 24-h covered spot test determined in accordance with 10.5.1, after a 1-h recovery time, minimum performance is no evidence of blistering, wrinkling, cratering, or delamination. After a recovery period of 24 h, minimum performance is no distinguishable difference in the hardness between the area exposed to the reagent and the adjacent unexposed area when rubbed lightly with a tongue depressor.

5.5.2 *Immersion Test*—For the 24-h distilled water immersion test determined in accordance with 10.5.2, minimum performance is no evidence of blistering, wrinkling, cracking, or delamination as determined when examined visually with

⁸ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.