



Designation: D3730 – 17 (Reapproved 2022)

Standard Guide for Testing High-Performance Interior Architectural Wall Coatings¹

This standard is issued under the fixed designation D3730; 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 guide covers the selection and use of test methods for high-performance interior architectural wall coatings (HIPAC) that differ from more conventional coatings by being tougher, more stain-resistant, more abrasion-resistant and, ordinarily, designed to be applied to wall surfaces of steel, masonry (poured concrete, concrete block, or cinder block), and plaster or gypsum wallboard. The tests that are listed in [Table 1](#) and [Table 2](#) are designed to measure performance properties. These tests may not all be required for each HIPAC system. Selection of the test methods to be followed must be governed by experience and the requirements in each individual case, together with agreement between the purchaser and the seller.

1.2 High-performance architectural coatings are tough, extra-durable organic coating systems that are applied as a continuous (seamless) film and cure to a hard finish. The finish can be high gloss, semigloss, or low gloss as desired. These coatings are resistant to persistent heat, humidity, abrasion, staining, chemicals, and fungus growth. They are used in areas where humidity, wear, or unusual chemical resistance requirements, particularly to soiling, are required and where strong detergents are used to maintain sanitary conditions. Halls and stairways in public buildings, lavatories, stall showers, locker areas, animal pens, and biological laboratories are typical applications. In addition, food processing plants, dairies, restaurants, schools, and transport terminals frequently use HIPAC systems. These are effective in many areas of building interiors compared with tile and are of low materials and maintenance costs. They are used as a complete system only as recommended by the manufacturer since the individual coats in a system are formulated to be compatible with each other. HIPAC systems should be applied only to properly prepared surfaces such as steel or masonry, including cinder

blocks and cement blocks. They can be applied over plaster and gypsum wallboard. Ordinarily, a prime or fill coat, if required, is part of the system.

1.3 While they are excellent for walls, HIPAC are not usually intended for ceilings and floors. They would not ordinarily be used in homes, although parents with small children might want to use HIPAC coatings on some walls.

1.4 The types of resin ordinarily used are the following: epoxy-polyamide, two-package; polyester-epoxy, two-package; polyurethane, one-package or two-package. However, other resin types are not excluded provided they can meet the requirements (performance specifications) laid down by the purchaser.

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

1.6 *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.* For a specific hazard statement, see the note in [7.6](#).

1.7 *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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[D16 Terminology for Paint, Related Coatings, Materials, and Applications](#)

[D93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester](#)

¹ This guide 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 Dec. 1, 2022. Published December 2022. Originally approved in 1978. Last previous edition approved in 2017 as D3730 – 17. DOI: 10.1520/D3730-17R22.

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.

TABLE 1 List of Standards in Sectional Order

Property (or Related Test)	Section	ASTM Test Method	Federal Test Method Standard No. 141
Sampling:	5.2	D3925	...
Liquid Paint Properties:			
Skinning	7.1	D154	
Condition in container	7.2	...	3011
Coarse particles and foreign matter	7.3	D185	
Density or weight per gallon	7.4	D1475	
Fineness of dispersion	7.5	D1210	
Flash point	7.7	D93, D3278	
Dilution stability	7.8	...	4203
Volatile content	7.9	D2369	...
Free diisocyanate content	7.10	D3432	...
Package stability	7.11		
Heat stability	7.11.1	D1849	
Settling	7.11.2	D869	
Color Acceptance	7.12	D5326	
Coating Application and Film Formation:			
Application properties	8.1	...	4541
Brush application	8.1.1	...	2141
Brush drag	8.1.1.1	D4958	...
Roller application	8.1.2	...	2112
Roller spatter	8.1.2.1	D4707	...
Spray application	8.1.3	...	2131
Open time	8.1.4	D7488	
Rheological properties	8.2	...	...
Consistency (low-shear viscosity)	8.2.1	D562	...
Rheological properties of non-Newtonian liquids	8.2.2	D2196, D4287	...
Sag resistance	8.2.3	D4400	...
Leveling properties	8.2.4	D4062	...
Curing properties	8.3	...	...
Wet-film thickness	8.4	D1212	...
Touch-up uniformity	8.5	D3928, D7489	
Low Temperature Coalescence	8.6	D3793, D7306	
Enamel holdout	8.7	D7786	
Appearance of Dry Coating:			
Color appearance	9.1.1	...	...
Color differences by visual comparison	9.1.2	D1729	...
Color differences using instrumental measurements	9.1.3	D2244	...
Directional reflectance	9.2	E1347	...
Gloss, 60°	9.3	D523	...
Hiding power	9.4	D344, D2805, D5150	...
Yellowness index	9.5	E313	
Properties of Dry Film:			
Abrasion resistance	10.1	D4060	...
Adhesion	10.2	D4541	...
Wet Adhesion	10.2.1	D6900	6301
Impact resistance	10.3	D2794	...
Chemical resistance	10.4	D1308	...
Washability and cleansability	10.5	...	...
Washability	10.5.1	D2486, D4213	...
Cleansability	10.5.2	D3450, D4828	...
Stainblocking	10.6	D7514	...
Mildew resistance	10.7	D3273	...
Perspiration resistance	10.8	...	...
Heat and cold resistance	10.9	D1211	...
Heat and humidity resistance	10.10	D2247	...
Fire hazards	10.11	E84	
Dry-film thickness	10.12	D1005, D1186, D1400	
Burnish Resistance	10.13	D6736	