

1. Scope

- 1.1. This standard establishes procedures for the inspection and acceptance of architectural paints on the interior surfaces of structures when dry film thickness is specified.
- 1.2. This standard establishes a procedure for measuring and testing the thickness of interior architectural paints to determine compliance with the manufacturer's technical application instructions and the painting specifications.
- 1.3. This standard establishes a procedure for the calculation of paint dry film thickness (DFT) when specified by the painting specifications.
- 1.4. It is intended that this standard be used where the painting specifications require a paint dry film thickness.
- 1.5. This standard does not address the inspection and acceptance of industrial protective coatings and linings or exterior paints.

2. Significance and Use

- 2.1. The criteria to be used to inspect and accept the application of paint to interior surfaces of architectural structures may be unclear and ill defined in the project documents. This condition creates confusion for both the painting contractor and the contracting entity which results in extraordinary costs and time delays.
- 2.2. When interior surfaces of structures are painted with architectural paints, then "a properly painted surface" defined by PCA Standard P1 should be the criterion for inspection and acceptance.
- 2.3. Dry film thickness should be a criterion for inspection and acceptance when industrial protective coatings and linings and exterior paints are applied.
- 2.4. When dry film thickness is to be considered a criterion for the inspection and acceptance of architectural paints on the interior surfaces of structures, then a method for measurement must be established.
- 2.5. The paint manufacturer's technical data regarding the specific products utilized shall determine the dry film thickness requirements of a coat of paint.

3. Reference Standards and Publications

- 3.1. FSCT, Coating Encyclopedic Dictionary, Edited by Stanley LeSota, 1995
- 3.2. MPI, The Master Painters Glossary - Painting and Decorating Terminology, Version 4
- 3.3. PCA Standard P1, Touch Up Painting and Damage Repair: Financial Responsibility
- 3.4. PCA Standard P2, Third Party Inspections: Qualifications, Responsibilities, and Procedures
- 3.5. PCA Standard P5, Benchmark Sample Procedures for Paint and Other Decorative Coating Systems

- 3.6. PCA Standard P9, Definition of Trade Terms
- 3.7. PCA Standard P10, Measurement of Surface Area for Estimating Painting and Decorating Work
- 3.8. SSPC-PA2 Measurement of Dry Coating Thickness with Magnetic Gauges
- 3.9. If there is a conflict between any of the references and this standard, this standard shall prevail

4. Definitions

- 4.1. ARCHITECTURAL COATING (PAINT): Coating (Paint) intended for on-site application to interior or exterior surfaces of residential, commercial, institutional, or light industrial structures as opposed to factory-applied or industrial coatings. They are protective and decorative finishes applied at ambient temperatures. [MPI]
- 4.2. CALIBRATE: To fix, check, or adjust the indication of output of a measuring device to that of a standard. [MPI]
- 4.3. CONTRACTING ENTITY: The general contractor, owner of the property, construction manager, developer or other entity legally responsible for the agreement or authorized agent of any of the above. [PCA Standard P9]
- 4.4. DRY FILM THICKNESS: The depth or thickness of a coating in the dry state. Usually expressed in mils or microns. [MPI]
- 4.5. SOLIDS BY VOLUME: The total volume percentage of non-volatile material. Also known as volume solids. The solids by volume is used to calculate the dry film thickness (DFT) of a coating from wet film measurements taken during application (i.e. where WFT= wet film thickness, VS = percent volume solids, $DFT = WFT \times VS$). [MPI]
- 4.6. SPECIFICATION: A clear accurate description of the technical requirement for material products, or services, which specifies the minimum requirement for quality and construction of materials and equipment necessary for an acceptable product. In general, specifications are in the form of written descriptions, drawings, prints, commercial designations, industry standards and other descriptive references. [FSCT]
- 4.7. THIRD PARTY: An independent contractor or business entity that is not a principal (contracting entity, painting and decorating contractor or material supplier), or employee or subsidiary of a principal, to the contract for coatings application work. [PCA Standard P9]

5. Standard Specification

- 5.1. Unless otherwise clearly defined in the project documents, the criteria for acceptance of architectural paints on the interior surfaces of structures shall be that of a properly painted surface as defined by PCA Standard P1. "A "properly painted surface" is defined as uniform in appearance, color, texture, hiding and sheen. It is also free of foreign material, lumps, skins, runs, sags, holidays, misses, or insufficient coverage. It is also a surface free of drips, spatters, spills or overspray caused by the painting and decorating contractor's workforce. In order to determine whether a surface has been "properly painted" it shall be examined without magnification at a distance of thirty-nine (39) inches or one (1) meter, or more, under finished lighting conditions and from a normal viewing position."

- 5.2. When and only when the bid documents prepared by the specifying authority and/or contracting entity clearly state that the measurement of dry film thickness shall be a criterion for acceptance of painted interior surfaces of architectural structures, then the following conditions shall apply:
- 5.2.1. A third party inspector as defined and meeting the requirements of PCA Standard P-2 shall be utilized for the inspection and acceptance of architectural paints on the interior surfaces of structures whose expense shall be borne by the contracting entity.
 - 5.2.2. The dry film thickness of each coat required shall be based on the manufacturer's percent solids by volume. The formula $DFT = \% SBV \times 1604 / SF$ shall be used to calculate the thickness of each coat where DFT is the dry film thickness in mils, % SBV is the percent solids by volume of the specific material, and SF is the manufacturer's recommended spreading rate for that material. In the event of a conflict between the manufacturer's data and the bid documents, the manufacturer's data shall prevail.
 - 5.2.3. Non-destructive methods shall be used to measure the dry film thickness of architectural paints on the interior surfaces of structures to avoid damage to the painted surfaces.
 - 5.2.4. Measuring devices should be properly calibrated prior to use. The accuracy of the instrument shall be verified by measuring reference standards that cover the range of the expected dry film thickness.
 - 5.2.5. Precise locations to be tested shall be selected randomly and shall be geometrically representative of the surface being tested.
 - 5.2.6. Three measurements shall be made in close proximity, within a two inch diameter circle, and averaged to determine a "spot measurement." Any unusually high or low readings that are not repeatable shall be discarded.
 - 5.2.7. One spot measurement shall be made for every 100 square feet of surface area of various substrates, where the measurement of surface area is in accordance with PCA Standard P10.
 - 5.2.8. It is recognized that it is not possible to field apply paints at a consistent dry film thickness. Therefore, the dry film thickness for any spot shall be at least 80% of the specified dry film thickness as defined by 5.2.2 and the average of all spot measurements shall be at least 95% of the specified dry film thickness. If a maximum thickness is specified, then the average of all spot measurements shall not be greater than 105% of the maximum thickness. If a maximum thickness is not explicitly specified, then no maximum thickness applies.
 - 5.2.9. If any spot is not in compliance with the requirements of 5.2.8, then the area containing that spot shall be repainted to the nearest break to achieve compliance.
 - 5.2.10. When a benchmark sample is prepared in accordance with PCA Standard P5, then dry film measurements shall be made on the sample and the accepted values will be used as a basis for acceptance.

6. Comments

- 6.1. This standard establishes a consistent method for the inspection and acceptance of architectural paints on the interior of structures.
- 6.2. This standard establishes that visual appearance is the prime criterion for the acceptance of architectural paints on the interior of structures.
- 6.3. This standard defines a protocol when the measurement of dry film thickness is a criterion for the acceptance of architectural paints on the interior surfaces of structures.
- 6.4. The measurement of dry film thickness on porous surfaces such as drywall or concrete block may be inaccurate due to porosity of the substrate and surface profile.

7. Disclaimer of Liability

- 7.1. PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness or usefulness of any of the information contained herein.