Designation: D2967 – 07 (Reapproved 2013)

Standard Test Method for Corner Coverage of Powder Coatings[1]

This standard is issued under the fixed designation D2967; 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 test method covers the determination of the ratio of corner thickness (see 3.1.3) to face thickness (see 3.1.4) of powder coatings applied to a specific face thickness by dipping preheated square bars into aerated powder and curing the coating using predetermined conditions.

NOTE 1—The property of corner coverage has also been referred to as "edge coverage," though the latter is not recommended. There are widespread misunderstandings and expectations relative to the term "edge coverage." This test is performed on a steel bar having square corners and the results do not necessarily relate to edges that are sharper, that is, burrs. A coating that has measurable corner coverage may still not protect sharper edges from corrosion or provide the electrical insulation needed in some applications.

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]

D374 Test Methods for Thickness of Solid Electrical Insulation (Withdrawn 2013)[3]

3. Terminology

3.1 *Definitions:*

3.1.1 *coating powders, n*—finely divided particles of resin, either thermoplastic or thermosetting, generally incorporating pigments, fillers, and additives and remaining finely divided during storage under suitable conditions, which, after fusing and possibly curing, give a continuous film.

3.1.1.1 *Discussion*—The coating powder may contain fillers, colorants, curing agents, etc., consistent with producing the desired coatings. The powder is applied by various methods such as spraying, sprinkling, or dipping. Usually hot parts are used. Heat causes the powder to melt and flow into a dense coating.

3.1.2 *corner coverage, n—of powder coating*, the ratio of the corner thickness to the face thickness of the fused coating expressed in percent.

3.1.3 *corner thickness, n—of powder coating*, the average thickness of the coating on sharp 90° corners of steel bars measured at 45° to the flat surfaces.

3.1.4 *face thickness, n—of powder coating,* the average thickness of the coating on flat surfaces of steel bars measured perpendicular to the surfaces.

3.1.5 *powder coatings, n*—coatings which are protective or decorative, or both, formed by the application of a coating powder to a substrate and fused in a continuous film by the application of heat or radiant energy.

4. Significance and Use

4.1 This test method measures the degree to which different coating powder materials cover sharp corners. Corner coverage is influenced by face thickness, thixotropy, melt viscosity, surface tension, cure rate, and temperature of application and curing.

5. Apparatus

5.1 *Aerated Bed*—Suitable for providing a uniformly suspended dense phase of free–moving powder. Fig. 1 shows a schematic of an aerated bed used for suspending the coating powder. The equipment consists of an open top chamber which has a porous plate for a false bottom. Air is introduced under the plate at a low pressure so that it filters through the porous plate and uniformly suspends the particles contained in the chamber.

5.2 *Micrometer Caliper*—25.4 mm (1 in.), in accordance with Method C of Test Methods D374.

5.3 *Oven,* with forced convection capable of maintaining the specified temperature within ±3°C.

[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 D01.51 on Powder 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] The last approved version of this historical standard is referenced on www.astm.org.

***A Summary of Changes section appears at the end of this standard**