Designation: D 4005 – 92 (Reapproved 2001)

Standard Test Method for Plastic-Coated Fabrics—Completeness of Fusion of PVC Dispersion Coatings[1]

This standard is issued under the fixed designation D 4005; 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 method describes a simple procedure to determine the completeness of fusion of poly(vinyl chloride) (PVC) dispersion coatings on fabric. This test applies primarily to coatings with a mechanical bond and does not include tie coating.

1.2 *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. Summary of Test Method

2.1 Specimens of the PVC-coated fabric are examined for surface cracks or breaks, followed by immersion in acetone. Subequent appearance of additional cracking indicates that fusion is incomplete.

3. Significance and Use

3.1 Poly(vinyl chloride) (PVC) is applied to coated fabrics as a dispersion of PVC particles in a liquid vehicle. During the processing of the fabric the PVC is fused or melted to produce a uniform film on the fabric. This test measures whether the PVC is converted, fused, or melted to produce a homogeneous film.

3.2 This conversion process is a melting of the crystallite structures in the polymer particles followed by solution of the molten polymer in the plasticizing vehicle. Fusion is important in the production of PVC-coated fabrics.

4. Apparatus and Reagents

4.1 *Glass Beaker*, 500-mL.

4.2 *Acetone*.

4.3 *Glass Rods*, 5 mm diameter.

4.4 *Metal Clips*.

5. Sampling

5.1 Select a sample of coated fabric to adequately represent the roll or lot under consideration.

5.2 Cut three 20 by 40-mm test specimens to be tested, one in the middle and the others from the sides at least 200 mm from the edges of the roll of fabric.

5.3 Remove the PVC coating from the fabric of the test specimens by peeling carefully.

6. Procedure

6.1 Carefully examine each specimen for cracks on the surface or breaks (cracks completely through the film) and record size, frequency, and location.

6.2 Wrap each specimen around a glass rod with the coating under test outward. Secure the assembly with a metal clamp.

6.3 Immerse the test specimens in acetone at 23 ± 2°C for 15 min. Remove and examine visually. Determine whether cracks or breaks have appeared.

7. Report

7.1 Report the following information:

7.1.1 Description of the material and date manufactured,

7.1.2 Date tested,

7.1.3 If any cracks or breaks have appeared, report that fusion is incomplete, and

7.1.4 Report the observation of each test specimen separately.

8. Precision and Bias

8.1 This test is essentially a “pass-fail” test and does not assess a quantitatively measured test characteristic. Due to this no precision and bias data are reported.

9. Keywords

9.1 coated fabrics; fusion; PVC

[1] This method is under the jurisdiction of ASTM Committee D11 on Rubber and is the direct responsibility of Subcommittee D11.37 on Coated Fabrics and Rubber Thread.

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