Afera 4022 (EN 12035) Test Method

Adhesive Tapes - Flagging or End-Lifting Test

1. Scope

This standard specifies a method to measure flagging which may occur under specified conditions.

2. Reference Documents

2.1 ASTM Standards:

ASTM Practice D 3715/D 3715M Standard Practice for Quality Assurance of Pressure-Sensitive Tapes.

2.2 CEN Standards:

EN 12035 Self adhesive tapes – Flagging of adhesive tapes

GTF: Global Tape Forum

ASTM: American Society for Testing and Materials (USA)

EN: European Norm (Europe)

3. Definitions

Flagging or end-lifting is the lifting of an end of a wrapped tape after application, thus forming a flag or tab tangential to the surface, leading to partial or complete unwinding.

4. Summary of Test Method

A length of tape is wound upon itself round a thin rod with one-quarter turn overlap. After the prescribed time and conditions any lifting of the end is examined and, where necessary, measured.

5. Significance and Use

The test method is designed to determine whether the adhesion of the tape to its own backing is adequate for applications where unwinding could occur. The flagging may occur under normal conditions, during the curing cycle of thermosetting adhesives or during immersion in liquids.

6. Apparatus

6.1. A simple winding jig designed to hold a rod at each end with a means of rotating the rod so that the specimen may be wound thereon. The winding jig shall be attached to a rigid support with the rod held in a horizontal position.

6.2 Rods of any suitable metal or glass of 6 mm or 12 mm nominal diameter.

6.3 Attachable masses of 100, 200, 300 and 400 grammes.

6.4 A suitable method of measuring 2 mm to the nearest 0.5 mm.

6.5 A razor blade (or other sharp tool).

7. Sampling

7.1 Sampling shall be in accordance with ASTM Practice D 3715/D 3715M or other formal sampling procedure agreed to by both parties for referee testing

8. Test Specimen

8.1 Removal from roll: Three strips of tape, at least 100 mm long, are removed from the roll by pulling radially at a rate of approximately 300 mm/s, at intervals of 300 mm.

8.2 If the width of the tape is greater than 12 mm, the specimen shall be cut out of the middle of the tape to a width of 9 mm. The specimen shall be cut with a sharp tool to avoid tearing the edges.

Note 1: It is important to protect the adhesive surface from dust and to avoid touching it with the fingers or any other foreign object.

9. Standard Test Conditions

9.1 The test shall be carried out at (23 ± 1) °C and (50 ± 5) % relative humidity.

10. Procedure

10.1 A rod of 6 mm diameter (unless otherwise specified) is mounted in a horizontal position in the jig. A mass in the ratio of 400 g to 12 mm tape width (e.g. 300 g for 9 mm width) is attached to one end of the tape specimen. The tape is held by the other end so that it is vertical and the adhesive side is brought into contact with the side of the rod. (See Fig. 1.)

10.1.1 The rod is rotated through 90° until the original point of contact "A" of the tape with the rod is at the top. (See Fig. 2). The tape is cut with a sharp tool at this point and the mass left suspended.

10.1.2 The rod is then rotated one complete turn. The mass is removed and the tape is cut at D by placing a sharp tool tangentially to the rod (See Fig. 3), and tearing the tape against the tool. The result is an overlap of one-quarter turn, i.e. 90°.

10.2 Adhesion to backing: The prepared specimen shall be stored in the vertical position for 7 days at (23 ± 1) °C and (50 ± 5) % relative humidity.

10.3 Curing properties of thermosetting tapes: The prepared test piece shallbe atored at the temperature and for the time prescribed by the manufacturer or in the relevant specification sheet.

10.4 Resistance to immersion in liquids: The prepared specimen, cured if necessary, shall be totally immersed in the vertical position in the liquid at (23 ± 1) °C for 15 minutes.

10.4.1 Thermosetting tapes shall be cured for the time and at the temperature prescribed and shall be allowed to cool to (23 ± 1) °C before immersion in the liquid.

10.4.2 The liquids for immersion shall be agreed between the manufacturer and the customer.

11. Results

11.1 The flag, i.e. the length of tape unwound, (see Fig. 4) shall be measured to the nearest 1 mm. Should uneven flagging occur, the greatest distance shall be noted.

11.2 The central value of the three readings (median) shall be recorded as the amount of flagging or end-lifting.

12. Test Report

The report shall contain the following:

- Complete identification, if available, of the PSA tape tested, including the type, source, manufacturer’s code, lot number and form in which it was received.

- Statement that this test method was used and any deviations from the method as written.

- If necessary, the composition or the nature of the liquid(s) used for the test.

- The results obtained.

-Any unusual features observed.

- Date of the test.

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