Afera 4009 (EN 12027) Test Method

Flame Resistance of Adhesive Tapes

1. Scope

The test method is designed to measure the ability of an adhesive tape to withstand exposure to flame.

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 12027 Self Adhesive Tapes – Measurement of flame resistance.

GTF: Global Tape Forum

ASTM: American Society for Testing and Materials (USA)

EN: European Norm (Europe)

3. Summary of Test Method

A freely suspended piece of tape is ignited by means of a fuse. The time for the flame to go out and the length of the tape burnt are determined

4. Significance and use

This test method provides information that can be used in material specification for product design and quality assurance applications. It can be used in comparing different products.

5. Apparatus

5.1 Test chamber: This shall consist of a hollow metal box (250 x 250) mm and 750 mm high. The box shall be open at the top and shall have twelve holes, each 12 mm in diameter, uniformly spaced along a horizontal line 25 mm from the base. One vertical side shall be fitted with a sliding glass panel. A detachable clip shall be fixed centrally, 30 mm from the top of the box parallel to the glass panel, to act as a means of attachment for the test specimen so that it can be suspended vertically and hang freely. The test chamber shall be placed during the test in a draught-free atmosphere during the test.

5.2 Fuse: This shall consist of untreated and uncoated regenerated cellulose film (60 g/m2). It shall have the shape of an isosceles triangle, base 25 mm and height 30 mm.

5.3 Source of ignition: This shall be a non-oxidising flame, 20 to 25 mm high, produced by a micro-Bunsen burner having a tube of 4 mm internal nomimal diameter.

5.4 Stop watch

6. Sampling

6.1 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.

7. Test Specimens

7.1 Discard the 3 outer turns of tape from the roll before taking specimens.

7.2 Perform the test on 5 strips, each 300 mm long and 25 mm wide. Some tapes contain a residue of flammable solvent and the effect of this, if any, should be included in the test. For this reason each specimen should be taken from the roll immediately before the test on that specimen and the test should be performed without delay.

7.3 Mark each specimen on the back, 50 mm from one end, in ink or by other suitable means.

8. Procedure

8.1 Attach the fuse to the adhesive side of the tape at the marked end of the specimen, covering not more than 5 mm of tape. The height of the triangle shall lie along the longitudinal direction of the tape, apex downward. The short side of the triangle shall lie parallel to the lower edge of the test specimen.

8.2 Fix the other end of the test specimen in the clip and mount the assembly in the position provided in the test chamberin such a way that the tape hangs freely and vertically.

8.3 Slightly raise glass panel and bring the micro-burner flame to the lower end of the fuse. Ignite the fuse and close the sliding panel quickly.

9. Results

9.1 Record the behaviour of the tape as follows:

9.1.1 If the tape does not ignite, it shall be described as "non-flammable".

9.1.2 If the specimens ignite and the flame goes out before reaching the 50 mm mark, note the central value of the burning time of the 5 specimens. Record, in addition, the longest length of tape burnt during the 5 tests and classify the tape as “self-extinguishing”.

9.1.3 If the tape burns, breaks up or chars beyond the 50 mm mark record the median value of the burning time of the 5 specimens. If some of the specimens give results which would bring them into different classifications, this shall be recorded and the average value shall be chosen in the most appropriate way.

10. 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.

-The results obtained.

-Date of the test.

Issued October 2019