Afera 4003 (EN 12024) Test Method

Resistance to High Temperature and Humidity

1. Scope

The test method is designed to obtain an indication of the behaviour of the adhesive tape under specified conditions of elevated temperature and high humidity.

2. Summary of Test Method

The adhesive tape is placed in an enclosure maintained at an elevated temperature and a high humidity for a sufficient period and the effect, if any, on the physical or chemical properties of the tape, including the adhesive, is observed.

3. Apparatus

3.1 Desiccator

3.1.1 The desiccator shall have an internal diameter of at least 300 mm.

3.1.2 The desiccator shall be constructed of material inert to copper sulphate.

3.1.3. The lower part shall contain an aqueous solution of glycerol (Propane-1, 2, 3-triol) intended to maintain a relative humidity of (85 ± 2) % in the desiccator at the test temperature.

3.1.4 The level of the glycerol solution shall be at least 20 mm below the level of the perforated plate.3.2 Solution Composition

3.2.1. 100 g of aqueous solution, containing 46 g of glycerol, shall have a specific gravity of approximately 1.17 at 23 °C and its refractive index (sodium D line) shall be approximately 1.392.

3.2.2 0.1 % by weight of copper sulphate shall be added to the solution to avoid mould growth. (For example, 4 drops of a saturated copper sulphate solution for every 100 ml of aqueous glycerol solution).

3.3 Oven

3.3.1 An air circulating oven capable of maintaining temperature within +/- 2 °C of the set point.

3.3.2 The oven shall be so constructed that the desiccator can stand in a region of the oven where the temperature is maintained uniformly at the required temperature.

3.4 As an alternative to 3.1, 3.2 and 3.3, a climate chamber that is capable of maintaining the same conditions, may be used.

4. Materials

4.1. Commercial rolls of tape, preferably 25 mm wide and at least

9 m long, shall be taken as test specimens. Rewound rolls shall not be used.

5. Conditioning

5.1 The rolls are tested "as received".

6. Procedure

6.1 Place the rolls horizontally on the perforated plate without touching each other. Place the desiccator (without lid) in the oven. Allow the temperature to reach equilibrium before closing the desiccator. Ensure that the closure of the desiccator is air-tight.

6.1.1 The desiccator shall not be left open longer than is necessary during insertion of the samples, so as not to cause a reduction in the level of the humidity during the test to below that specified.

6.2. The oven shall be set at either (40 ± 2) °C or (65 ± 2) °C. The test shall be carried out at either of the above temperatures for seven days, unless otherwise stated in the specification sheets.

6.3 After completion of the seven days period, the rolls shall be placed in the standard atmosphere of (23 ± 1) °C and (50 ± 5) % relative humidity for 2 hours.

7. Observation of changes7.1 Visual examination shall be made at the end of the two hour period. All apparent changes which are noticeable shall be recorded, particularly telescoping, distortion, air pockets, etc.

7.2 A further examination will be carried out by unwinding the roll radially at a speed of approximately 300 mm/s. After discarding the first three turns of tape any breakage, twisting, adhesive offsetting which occurs shall be noted, also any delamination in the case of paper tapes.

7.3 Depending on the use to which the tape is to be applied, further testing may be carried out The corresponding Afera test methods shall be used. It is recommended to compare the values obtained both before and after exposure.

8. Test Report

:

8.1 The test report shall comprise:

- Reference to this Afera TM

- Full designation of the tested sample material

- Testing conditions, temperature and duration of test

- Results

- Any deviation from the procedure described in this method that may influence the results

- Date of the test

Issued September 2019