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Practice for accelerated aging of pressure-sensitive tapes

压敏胶粘带加速老化试验方法

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Practice for accelerated aging of pressure-sensitive tapes

1 Scope

This standard provides an environment which is suitable for accelerated aging testing of finished pressure-sensitive tape materials.

This standard applies to packaging adhesive tapes. It also applies to other types of adhesive tapes with the same structure.

This standard does not provide test conclusions. This standard shall be used together with appearance inspection or physical property test methods after accelerated aging.

This standard does not apply to electrical insulating adhesive tapes.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. The versions indicated at the time of publication of this standard are valid. All standards are subjected to revision, AND parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable.

GB/T 2792-1988 Test method for peel strength of pressure-sensitive tape at 180° angle

3 Test methods

3.1 Place the pressure-sensitive adhesive tape for 96 hours in an environment of 66 °C and 80% relative humidity. Then let it stand for a certain period of time, under standard laboratory conditions. After returning to the standard environmental state, the adhesive tape can be used, for example, GB/T 2792 Method, for scheduled testing.

3.2 This standard can accelerate the natural aging of pressure-sensitive adhesive tape, so that when compared with the test values before aging, the changes in the test values of its general physical properties can reflect a degree equivalent to at least two years of natural aging.

3.3 Natural aging in 3.2 refers to placing the adhesive tape in a closed fiberboard container (in a dark place), placing it in various climatic conditions, continuing to age for a period of time.

6 Preparation of solution

6.1 Prepare an aqueous ammonium sulfate solution by mixing ammonium sulfate and distilled water or soft water, at a weight ratio of 1:1. The amount of water (ml) shall not be less than $500 \times 132 \times$ the volume of air in the test tank (cubic meters). In this way, it can get 500 times the amount of water, which is necessary to maintain 80% humidity in the air in the tank and to replenish the moisture absorbed by the tape roll at 66 °C. What is obtained at this time is a saturated solution of ammonium sulfate, which can continue to remain saturated at 66 °C. In a closed test tank, the solution both creates and controls the necessary humidity in the test tank.

7 Sampling

7.1 Sampling for this standard shall be in accordance with the requirements of the appropriate material or commodity specification.

7.2 In the absence of the requirements mentioned in 7.1, the sampling method may be carried out, according to the requirements of the physical property test method to be carried out after accelerated aging.

8 Specimens

8.1 The specimen is a finished adhesive tape rolled on a reel.

8.2 The length of the adhesive tape on the roll slightly exceeds the total length of the specimen, which is required for the physical property test after accelerated aging.

8.3 The width of the adhesive tape shall not be less than 12 mm.

8.4 The adhesive tape rolls shall be original and not re-rolled.

9 Test steps

9.1 The tape roll is located above the solution in the test tank. The edge flange plane of the tape roll is parallel to the liquid level.

9.2 The volume of the tape roll placed shall not exceed 1/4 of the air volume of the test tank.

9.3 To expose all surfaces of the tape roll to moist air, use a breakaway stand that shall not absorb water.

9.4 Close the test tank and place it in the oven.

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