ADHESIVE PROPERTIES AND TESTING METHODS
(according to FINAT regulation)

FINAT Test Methods

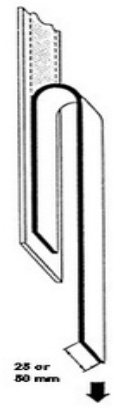
Internationally approved standard methods developed by FINAT for carrying out tests of materials for self-adhesive labels.

ADHESION – Detachment strength

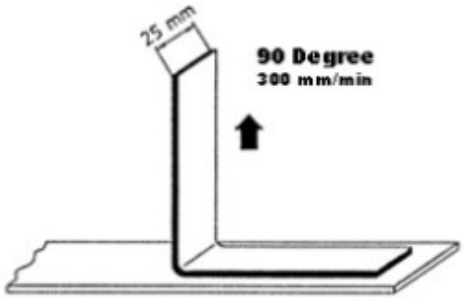
Definition:Strength needed for detaching an adhesive sensitive to pressure from a standard testing board to which ithas been adhered under specific conditions and at a certain angle for a fixed amount of time. Adhesionstrength is measured after 20 minutes and 24 hours, or after 1 week of contact time.

Testingmethods: PEEL

FTM1-Adhesive detachment test (180º) at 300mm/min.
FTM2–Adhesive detachment test (90º) at 300mm/min.



180 Degree
300 mm/min



Procedure: A test strip 25 mm wide and at least 175 mm long is adhered to a standard glass plate through the exertion of pressure by a 2 kg roller. The sample is detached at an angle of 180º or 90º and at a constant speed of 300mm/min. A minimum of three strips should be used for each sample of material.

Comments:

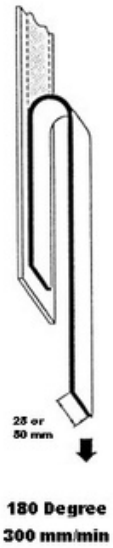
- For a testing board, alternatives to glass substrates such as stainless steel, PE, aluminum or kraft cardboard can be used.
- Depending on the results, a preliminary classification of the adhesive as super-permanent, permanent, removable, etc. can be made.

RELEASE – Detachment strength

Definition:Strengthrequiredseparatinga self-adhesive material from the silicone substrate (protective sheet)towhichitisattached,formingthe laminate.

FTM 3 – Detachment test at low speed.
FTM 4 – Detachment test high speed.

Low-Speed Release



High-Speed Release

Procedure:

- For a low-speed release the strips should be 50 mm wide and at least 175 mm long. The measurement is made at an 180º angle and at a constant detachment speed of 300 mm/min. A minimum of 3 strips should be used for each sample of material. Detachment at low speed simulates the process of dispensing and applying the label.

- For a high-speed release the strips should be 30 mm wide and at least 300 mm long. The measurement is made at an 180º angle and at constant detachment speed of 150 mpm. A minimum of 3 strips should be used for each sample of material. Detachment at high speed simulates the process of die-casting and behavior during matrix stripping.

Significance

An overly rapid release can result in ruptures in the paper during die-casting or errors in the automatic dispensation of labels that do not separate smoothly from the substrate.

If theprocess is too slow, the labels can “fly”, that is, separate from the silicone substrate during application, or beremoved with the matrix during matrix stripping.

Comments

- This property is crucial for self-adhesive reels that can reach high speeds, which means that good matrix stripping is essential. In addition, the automatic application of labels to products is also carried out at high speeds, and consequently the release is, again, an extremely important factor.

- With self-adhesive in sheets this property is not as important as with reels. Still, the release must occur within certain limits, for if it is too fast separation of the silicone substrate will be difficult, potentially causing the facestock material to tear in extreme cases. With labels with pre-scoring on the back (Kris-Line), the most important factor is that the release not be too fast so as to avoid, as much as possible, the Kris-Line tearing at other points when the two halves of the silicone substrate are separated.

TACK – Stickiness

Definition: Tack is used to measure the initial adhesion. It is the resistance strength of the adhesive facestock material adhered to a surface in specific conditions (minimum time and the contact pressure aside from that of the weight of the paper).

The tack, or stickiness, is one of the most important properties of PSA, especially for reels when labels need to be applied automatically at a high speed.

Testing method: QUICK STICK

FTM 9 –Measurement of initial stickiness ("Quick Stick")

Procedure: An adhesive ribbon 25 mm wide and at least 175 mm long is attached to the clamp of a dynamometer. The loop is placed in contact with a stainless steel plate (or other material) in a contact area of 25 X 25 mm and is detached at a speed of 300 mm/min.

Significance: High stickiness indicates, considerable ease of "attaching" to surfaces where detachment is difficult, and ruptures of the facestock material in many cases and can cause bleeding. The opposite holds true for low tack.

In the automatic application of labels, for example, in the case of the application of labels with a price gun to large surfaces, the self-adhesive is dispensed quickly and with little pressure. In many labeling lines, however, after the label has been applied, pressure is exerted on it by various means (rollers, brushes, rubber bands, etc.), but at the moment of application the label must remain adhered, and it is here where good tack is fundamental.

Comments

- Contrary property to cohesion: if the tack is very high, cohesion tends to be rather low.
- In addition to FINAT's Quick-Stick testing method there are others such as ASTM's Polyken-Tack and PSTC'sRolling Ball methods.

COHESION – Detachment strength

FTM 8 - Resistance to guillotine detachment strength (cohesive resistance of the adhesive mass)

Definition: Resistance to the guillotining of self-adhesive film, also bonding or internal fragmentation strength of self-adhesive film in 2 pieces (on the back of the facestock material and on the surface) during the application of force.

Procedure: The test is carried out by adhering a sample strip of 25 X 25 mm to a glass plate at a vertical inclination of 2º. A measurement is taken of the time it takes a 1 kg weight to internally fragment the adhesive film of the strip. A minimum of 3 strips should be used for each sample of material.

Significance: High values indicate resistance of the adhesive to bleeding during guillotining, low tendency toward lumps, and good resistance to heat; low values indicate the contrary.

MIGRATION

Definition: Dirtying of the exterior surface of the facestock material (brownish-gray, black or greasy spots) caused by the passage of certain self-adhesive components across the facestock material.

Procedure: Visual comparison of the state of the facestock material after accelerated aging at 70ºC for several days.

Last update: 2026