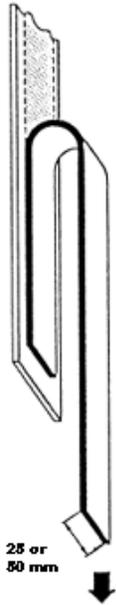


### FTM 1 - Peel adhesion (180°) at 300mm per minute

This test method quantifies the permanence of adhesion or peelability of self-adhesive pressure sensitive materials. Peel adhesion is the force required to remove pressure sensitive coated material, which has been applied to a standard test plate under specified conditions from the plate at a specified angle and speed.



**180 Degree**  
**300 mm/min**

Test strips should be 25 mm wide and have a minimum length of 175 mm in the machine direction.

Remove the backing material from each strip and place the adhesive coated facing material, adhesive side down, on to a clean test plate using light finger pressure and follow sample preparation procedures.

Fix the test plate and strip in the machine so that the angle of peel is 180°. Set the machine at 300mm per minute jaw separation rate. Set the machine load averaging function so that it averages data – taking more than five readings at 10mm intervals from the centre section of each test strip and averaging them.

Peel adhesion (180°) is the average result for the strips tested in Newtons per 25mm width. All 100 Series Testers can set the data to be displayed in Force/width.

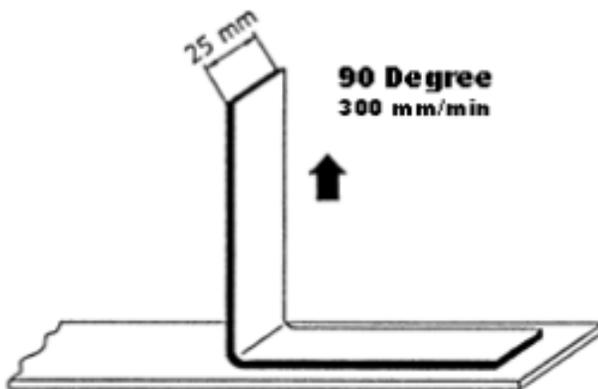
#### Testing Product Solutions:

The 100P (and 100Q, 100R) will perform this test - peeling a laminate through an angle of 180° with a jaw separation rate of 300mm per minute controlled to better than ± 0.1%. Test data is captured and stored with "average Load" firmware, which is required.

Manual grips are available with rubber faces to attach to required test plates made of float glass. A standard FINAT test roller is also available.

### FTM 2 - Peel adhesion (90°) at 300mm per minute

The purpose of this test is to compare the adhesive response of different laminates. Measuring peel adhesion at 90° normally gives a lower value than at 180° and allows values to be measured for materials normally giving paper tear. Peel adhesion is the force required to remove pressure sensitive coated material, applied to a standard test plate, from the plate at a specified angle and speed. Adhesion is measured 20 minutes and 24 hours after application, the latter being considered as the ultimate adhesion.



Test strips should be 25 mm wide and have a minimum length of 175 mm in the machine direction.

Procedure: Fix the test plate and strip into the horizontal support which is secured in the bottom jaw of the tester. Set the machine at 300mm per minute jaw separation rate. Set the machine load averaging function to average data.

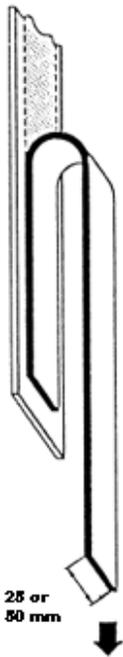
Peel adhesion (90°) is the average result for the strips tested in Newtons per 25mm width.

## Testing Product Solutions:

The 100P (and 100Q, 100R) will perform this test - peeling a laminate through an angle of 90° with a jaw separation rate of 300 mm per minute controlled to better than ± 0.1%. Test data is captured and stored with "average Load" firmware, which is required.

A manual grip (G227) attaches to the sample tab and a horizontal floating table (model G50) with test plates of float glass. The test plate moves freely in a horizontal position when the pressure sensitive material is removed in order to maintain an angle of peel of 90°. A standard FINAT test roller is also available.

## FTM 3 - Low speed release force



**180 Degree**  
**300 mm/min**

FTM 3 is used to determine the force required to separate the release backing from the pressure sensitive adhesive coated face material. It may be used in the preliminary evaluation of the conversion aspects of the laminate - very low values may create label fly during conversion or application - high values may produce web break when skeleton stripping die cut labels or dispensing failure during automatic application.

Low speed release force is the force required to separate a pressure sensitive adhesive coated material from its backing or protective sheet (or vice versa) at an angle of 180° and a jaw separation rate of 300mm per minute.

Procedure -- Fix each strip by double sided tape (cover the full test area of the sample), so the laminate can be peeled apart at an angle of 180°. The facing material may be peeled from the release substrate, or vice versa, depending on how the sample is applied to the plate. Set the machine load averaging function so that it averages data.. Low speed release force is expressed at the average result for the strips tested in centiNewton per 50mm width.

### Testing Product Solutions:

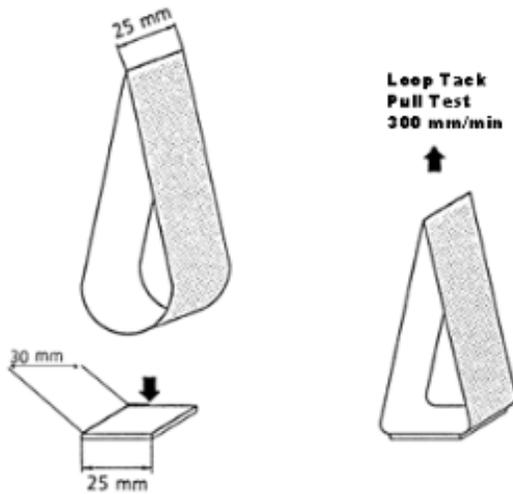
Any model 100 tester will perform this test with the correct fixtures. The G227 Grips can be outfitted with a back plate to which the test strip can be attached in order to maintain an angle of peel of 180°.

The strips should be 50mm wide and have a minimum length of 175mm in the machine direction.

## FTM 9 - 'Loop' tack measurement

Loop tack tests provide the means of assessing the most important and yet the hardest to measure property of pressure sensitive materials, the tack. The method allows the end user to compare the "initial grab" or "application tack" of different laminates and can be extremely useful to those working with automatic labeling equipment where this property is of particular importance. The 'loop' tack value of a pressure sensitive material is the force required to separate, at a specified speed, a loop of material (adhesive outermost) which has been brought into contact with a specified area of a standard surface.

Procedure -- Hold the two ends of the adhesive coated facing material strip and form the strip into a loop, adhesive surface outermost, by bringing the two ends together. Clamp the ends of the loop for a distance of 10mm into the top jaw of the tester leaving the loop hanging vertically downwards. The sides of the jaw should be protected from the adhesive coating.



Clamp the glass plate in the lower jaw. Position the loop into contact with the glass plate at a speed of 300 mm per minute. When full contact over the glass plate has been achieved (25mm x 25mm) immediately reverse the direction of the machine and allow separation to take place at a speed of 300 mm per minute. Record the maximum force necessary to completely separate each loop from the glass plate. The strips should be 25mm wide and have a minimum length of 175mm in the machine direction.

'Loop' tack results per FTM 9 are reported in Newtons.

### Testing Product Solutions:

Loop tack tests require our 100Q or 100R tester outfitted with load cell accurate enough to measure 20 Newtons within the standards accuracy (and better). It also requires grips with a special flat plate made of float glass or equivalent plate glass measuring 25 x 30 mm.

### FTM 10 - silicone coated substrates for self-adhesive laminates: release force

This test offers a method of assessing the suitability of a siliconised (or other release) backing material for pressure sensitive lamination. Release force is defined as the force required to separate a pressure sensitive adhesive coated material from its backing or protective sheet (or vice versa) under specified test conditions.

This requires the same type of tester as FTM 3 with the addition of a circulating hot air oven capable of maintaining a temperature of  $70 \pm 2^\circ\text{C}$ . The tester then requires different mechanical construction to accommodate the chamber for testing in the environment itself.

Release force is expressed as the average result for the strips tested in Newtons per 25mm width under standard conditions or accelerated ageing conditions.

### FTM 11 - 180 degree - silicone coated substrates for self-adhesive laminates: subsequent adhesion

This test method describes a technique whereby the effect of the release surface on the adhesive properties can be assessed. It is of particular interest both to manufacturers of release paper and also to pressure sensitive laminate manufacturers in determining the key and degree of cure of the release system. Subsequent adhesion is defined as the force required, at a specified angle and speed, to remove a pressure sensitive adhesive coated material from a standard test plate after it has previously been in contact with a silicone coated substrate under specified conditions.

The test samples come from FTM 10. See FTM 1 for equipment discussion.