180 Degree Peel Test on Syringe Blister Pack

Blisters packs are pre-formed plastic packaging used in the medical and pharmaceutical industries for packing pills, capsules, syringes, tablets and small medical instruments.

A blister pack is a laminated blister card with thermo-formed or cold formed cavities with paperboard, aluminum or plastic protective lid. It is important that the blister packs are manufactured to specifications and withstand contamination, moisture, tampering and unwanted separation.

These products need to arrive safe into the hands of the end-consumers without degradation. A 180 degree peel test on blister packs using a motorized force tester, such as the CS1100, with the proper grips will accomplish this task and provide results to verify the integrity of the blister pack.

What is Required

CS1100 Motorized Force Tester

The CS1100 tester is well adapted in production environments to do peel testing. With a small footprint the CS1100 tester can easily be set on a table for inline production testing. The CS1100 tablet touch screen makes the task even easier for the user with only one touch of the finger to begin the peel test. The tester has been designed with quietness in mind. This is also the perfect solution in the lab environment where silence is at a premium.

- 1000 kHz data sampling
- Load cell: +/- 0.10% of full scale
- Speed: +/- 1% of speed from 2 to 100% of max speed
- Capacities: 1000 N and 5000 N

Self-Tightening Wedge Grips

The self-tightening wedge grip model 01/4647 and serrated grip face model 01/4648 are the grips of choice for this application. The tabs of the blister pack will always be centered especially when it is difficult handling such small tabs.

The selection of proper grips is critical for successful testing.

For example, if serrated grip faces are too narrow for your specimen and the specimen rips in the grips, the tests results will be incorrect due to premature failure induced by the grip faces, therefore yielding inconclusive results.

If the grip face width is correct but the surface of the grip face is too smooth for the specimen, you will have slippage and therefore also incorrect results.

The grip faces on the self tightening wedge grips used for the syringe peel test in this example have the proper grip face width with a serration that will not allow the blister pack tabs to rip or slip.

Make sure to contact your Ametek Sales Representative if you have any questions selecting the proper grips for your application.

Reference Standards

- ASTM F88 (Standard Test Method for Seal Strength of Flexible Barrier Materials)
- JIS Z0238 (Testing Methods for Heat Sealed Flexible Package)
The 180 Degree Peel Test

Place the syringe blister pack in the grips with the tabs 180 degrees apart.

TIP!
A Qtip may be used as an aide to guide the lower tab into the grip when working in such tight areas. The Qtip is safer to use than your fingers.

The object of this blister pack peel test is to separate the syringe lidding from the blister cards and measure peak force.

See illustration of what to be expected during the blister pack peel test;

Zone 1
Start of test, beginning to pull on the tabs until the force starts to increase as the tabs become fully taught.

Zone 2
Pulling both tabs apart in maximum adhesion area and reaching peak force.

Zone 3
Reached tapered/reduced adhesion area on blister pack and force drops.

Zone 4
Pulling on tapered adhesion area until end of test at 1.5" of travel.

Results from CS1100 Tests Screens

For additional information go to our website, www.ametektest.com, where you can find product information and video demonstration on how to perform 180 degree peel tests on syringe blister packs.