

TA-MA – Muco-Adhesion

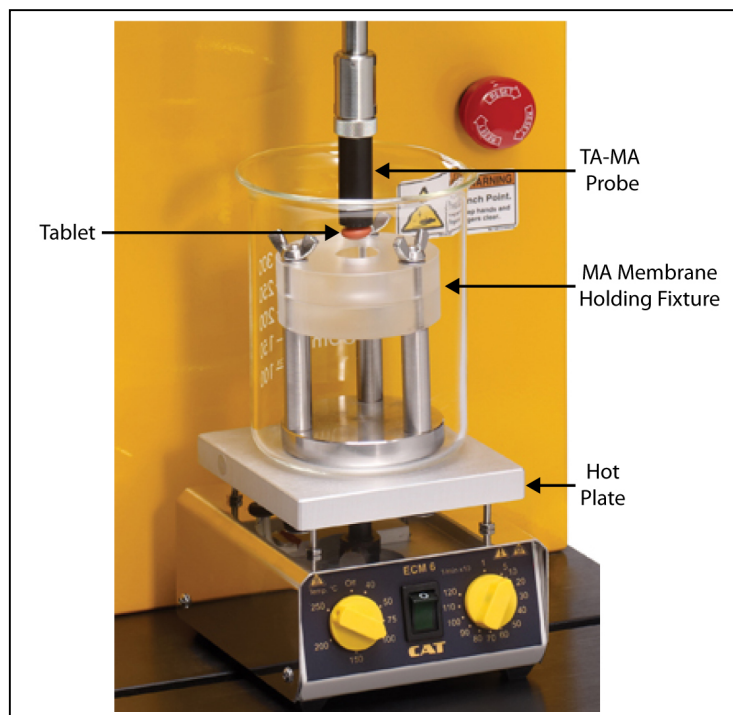
The Muco-Adhesion test accessory is designed to measure the natural adhesiveness between a tablet and a mucous membrane. This is an important parameter for transmucosal drug delivery systems.

Fixture Base Table

No base table is used with this fixture. A tissue sample is placed in the beaker, which is centered on the heated, stirring device (hot plate). The hot plate is placed directly onto the base of the CT3.

Install the Muco-Adhesion Test Fixture

Attach the TA-MA probe by screwing it fully into the M6 thread on the probe shaft. Place the hot plate directly on the base of the CT3 Texture Analyzer. Place the MA membrane holding fixture into the beaker and place on the hot plate.



Alignment of the Base Table in Stand Alone Mode

The easiest way to align the MA fixture under the MA probe in stand-alone mode is by using the Tension test. Rotate the select scroll knob until Tension test appears on display. After depressing the start button two times, the select scroll knob can be used to lower the probe to the MA fixture. Depressing and holding the Select/Scroll knob will continuously lower the probe, and rotating the Select/Scroll knob will lower the probe 1mm for each click of the knob. Center the MA fixture in the beaker and center the beaker on the hot plate, then align the hot plate so that the hole in the MA fixture is centered under the probe, alternately adjusting the position of the hot plate and lowering the probe.

Use of the Muco-Adhesion Test Fixture

The tablet is attached to the probe face via double-sided sticky tape. The membrane tissue is mounted between the circular acrylic disks of the MA membrane holding fixture. The fixture is placed into the beaker and the beaker is filled with the proper wetting solution. The hot plate keeps the beaker contents warm and the stirrer provides circulation within the beaker. During the test, the probe will descend into the fluid, press the tablet onto the membrane surface, and hold it there for the selected time period. At the end of the hold time, the probe

Installation Instructions for Texture Accessory Part Number: TA-MA

slowly retracts while measuring the adhesive strength between the membrane and the probe. The measured results are the force required to separate the tablet from the membrane and the work required to do so.

Texture Pro CT Software is required for this test and should be set up as follows:

The screenshot shows the software interface for the Muco-Adhesion Fixture test. The 'Sample Identification' section includes fields for Product Name (Membrane 1), Batch Name (Product X), and Sample (Increment Automatically). The 'Sample Dimensions' section shows Length (0.00 mm), Width (0.00 mm), Depth (0.00 mm), and Diameter (0.00 mm) for a Cylinder shape. The 'Test Type' section is set to Compression. The 'Test Target' section is set to Load with a Target Value of 50.0 g and a Hold Time of 120 s. The 'General Test Parameters' section shows a Trigger Load of 4.0 g, Test Speed of 0.20 mm/s, and Return at Test Speed. The 'Multiple Cycle Tests' section shows a Cycle Count of 1 and a Recovery Time of 0 s.

The settings shown above are suggestions for beginning your method development. The key parameters are:

- 1) The load force with which the tablet will be pressed onto the membrane. The Target Value selected above is 50 g.
- 2) The length of time you will allow the tablet to be in contact with the membrane. The Hold Time selected above is 120 s. (The time units may be chosen on the Setup page to be either seconds or minutes.)
- 3) The speed at which you wish to pull the tablet away from the membrane. This is going to be set indirectly as the Test Speed by setting the “Return at” speed to be the test speed. The Test Speed selected above is 0.2 mm/s.

For further information, please see the application study of Muco-Adhesion Testing on our web site.