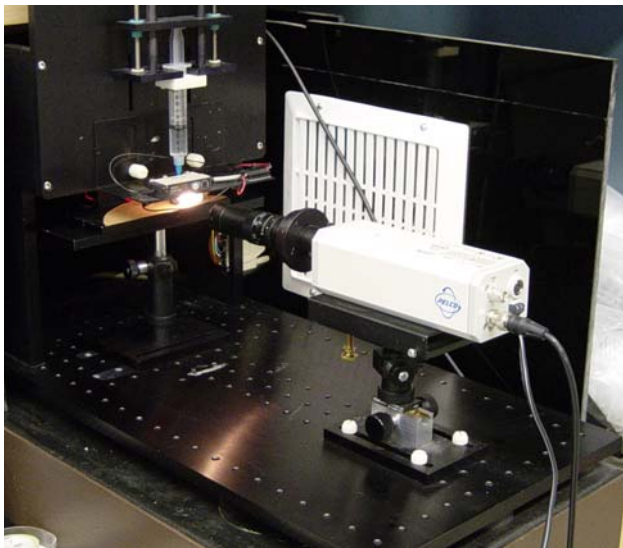


### Contact Angle Measurements on Paper

Advancing contact angle was measured by using double-sided tape to attach a 15 mm x 100 mm strip of paper sample (smooth sample facing up) onto a platform underneath a syringe and in front of a Pelco Model PCHM575-2 camera (Figure 1). The syringe and camera were connected to a computer for taking pictures with subsequent image analysis. The syringe was programmed to deliver a drop of double-distilled water at 10  $\mu\text{l}/\text{sec}$  onto the paper sample and an image was recorded every 0.067 seconds. For contact angle measurement, the frames were analyzed for the point at which the drop stabilized and remained symmetrical on the sheet surface. The drop usually stabilized 2-3 frames (0.134-0.201 sec) after contact with the sheet. The contact angle was measured in the digital photo with image analysis software. The results were the average of five measurements.



**Figure 1:** Contact Angle Measurement Apparatus