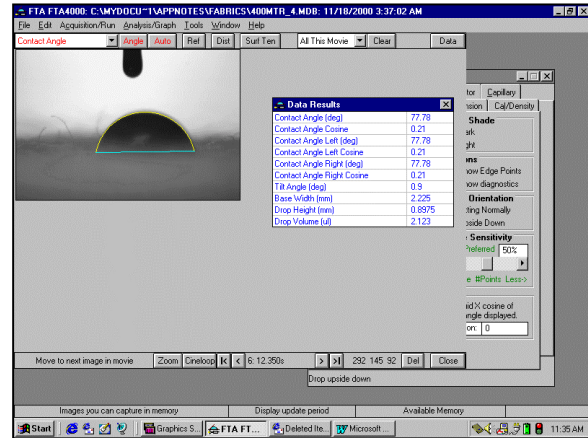


Contact Angle Measurements on Cotton Fabrics

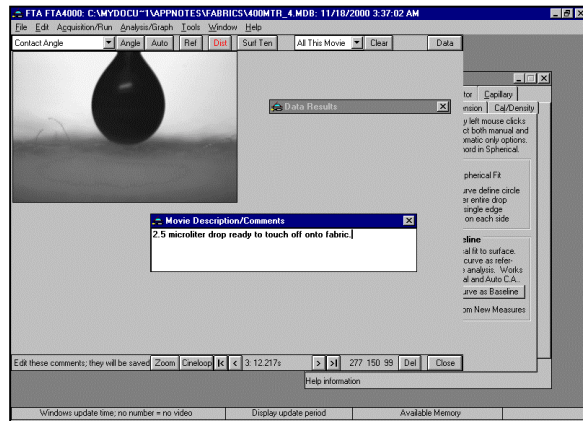
December 14, 2000

Cotton sheeting was tested for contact angle and absorption using a customer supplied ink as the test fluid. Two samples were provided: one had a special treatment and the other did not.

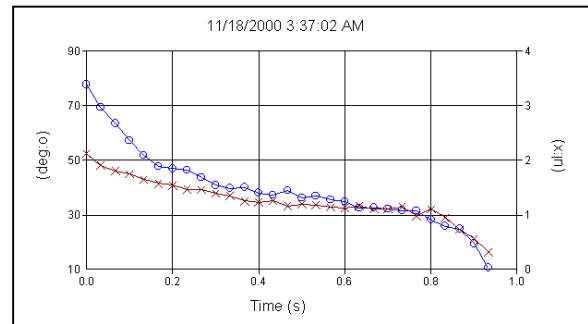
Small droplets, in the 2 to 3 μ l volume range, were deposited on the sample by positioning the dispense tip just above the surface and growing the pendant drop until its bottom touched the sample and the drop detached. The image below shows a typical drop just before detachment.



First Stable Sessile Drop After Detachment



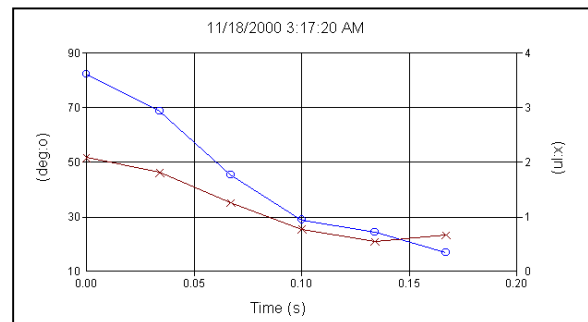
Drop Ready to Detach



Contact Angle and Drop Volume Over 1s

The corresponding graph below for an untreated fabric shows a more rapid absorption, even though the initial contact angle is very similar to that of the treated material.

The first stable sessile drop after detachment is shown in the next image, which is 0.133s later than the one above. The whole absorption took place in one second or less with these samples. The contact angle (left axis, with \circ symbols) and sessile drop volume (right axis, with \times symbols) were graphed next as a function of time. This first sample was a treated fabric. The second sample was not treated and showed faster absorption.



Contact Angle and Drop Volume Over 0.2s