Dynamic absorption tester DAT

Contact angle measurements can be used as a tool for understanding the wetting between a liquid droplet and a substrate. The original DAT concept offers a range of integrated instruments, for research as well as quality control.

These instruments enable detailed automatic analysis at full video speed of the interaction between a liquid droplet and a specimen surface. The time-dependent wetting and sorption response correlates to many experienced production problems in surface coating and sizing, printing and adhesion.

The DAT concept offers many advantages compared to "look-alike" imitations based on regular video cap-ture systems:

- Accurate timing of drop application to first image within one millisecond
- High precision pumps within ± 0.1 µl
- Precision pulse system for gentle application of the droplet
- Calibration and validation with ISO certificates

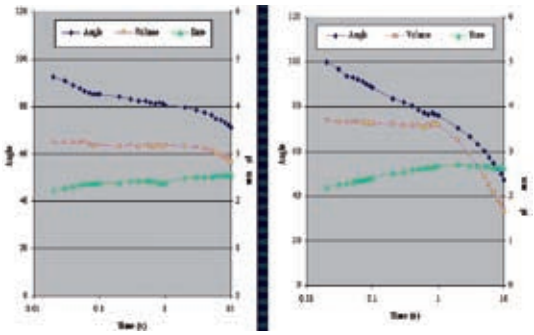
Test procedure

The DAT instruments are easy to operate and a com-plete test takes only a few minutes.

A specimen is cut to the proper dimensions and put into the feed mechanism. The syringe or container is then filled with the test liquid, and the test can start.

Individual images are captured throughout the test and can be replayed as still images or as an animated sequence. In this way, the ope-rator can control the timing selected with a precision of one millisecond accuracy.

Between each drop, the specimen is advanced until the requested number of drops have been measured. The average result and variation of contact angle (wetting), volume (sorption) and base diameter (spreading) is reported as a function of time.



Software

Interactive, easy-to-use software package.

All instruments come with a fully interactive easy-to-use software under Windows NT.

The new software has simplified the operation of the DAT with step-by-step instructions for setting up tests which can then be stored and recalled quickly. All parameters are easily modified to customise your tests for a variety of liquids and test materials. Quickly change the reference line, check times, droplet size and pulse stroke - save it; and you have a new test profile.

Software features

- Measure contact angle, penetration and spreading as a function of time
- Measure surface tension of the probing liquid
- Test profile database
- Probing liquid database
- Calculation of surface "free" energy
- Report generator
- Touch screen capability
- Recall previous tests
- Compare a series of tests
- Store diagram files and images for presentation and export to external software packages

Options

There are several available options to meet unique testing requirements:

• Automatic and manual feed systems of "special designs"

• Special sample feed which enables automatic measurement of "saturation time"

• The DAT Image Sequencer to characterise fast absorption rates for paper tissue and synthetic fiber materials

• The DAT Tilt Table to analyse wetting/de-wetting phenomena

• True high-speed video systems capturing up to 1000 images per second

• Special lens systems

Physical specifications

Dimensions

50 x 26 x 32 cm (L x W x H)

Net Weight

6 kg

Standards

ASTM D5725, TAPPI T-558