

## Contact Angle Analyzer (Theta, optical tensiometer)

### 1. Start

- Turn on the instrument and start program.

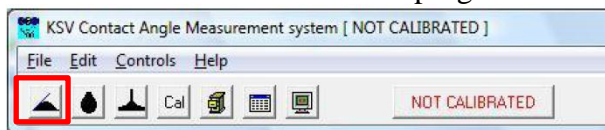


Image 3.1: Theta control program.

### 2. Experimental Setup

- Click **Contact Angle** experiment
- Write the **Name** of the experiment.
- Select **User**, **Solid**, **Liquid** (Heavy phase)
- Then, click **Start**

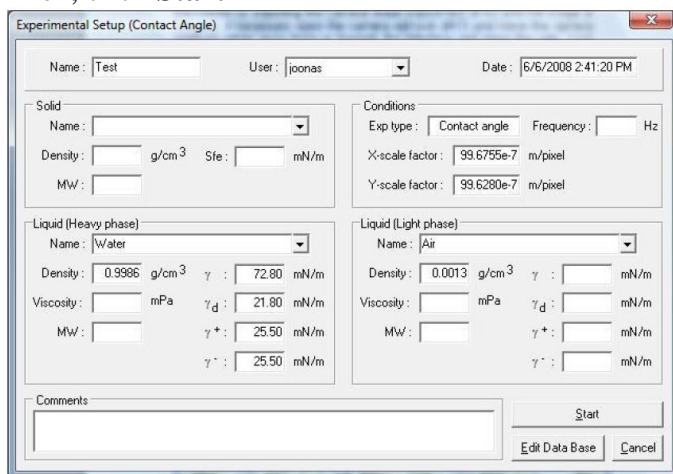


Image 3.11: The Experimental Setup window.

### 3. Image Recording

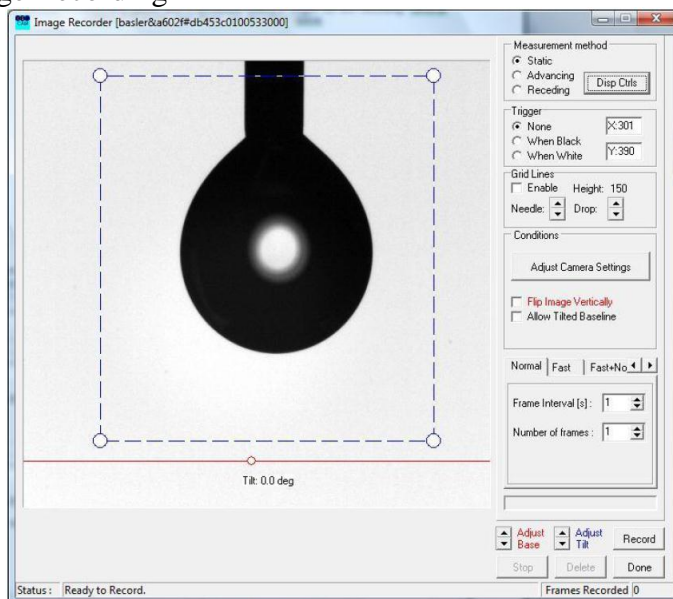


Image 3.12: The Image Recorder captures the measurement data.

- Lift or lower the sample stage until the solid is visible on the bottom part of the screen. If nothing is seen on the screen, restart from the first step. There might be some error in the system.
- You should see needle on the screen as above. If not, adjust the needle to be located on the center and at the top of the screen.
- Select a recording mode, **Nomal/Fast/Fast+Normal**.
- Click **Disp Conts**, then dispenser window open.
- Adjust **Drop Out Size**; the drops of 5–15  $\mu\text{L}$  are reasonable. Then, click **Drop Out**.
- Click on the image near the border between the drop and the background and the Focusing window will open.
- To adjust the focus of the image turn the camera lens focus adjustment until the image is focused.
- Click **Adjust Camera Setting** to get appropriate intensity (green on Focusing window).
- Approach the sample stage to touch the drop.
- Click **Record** and wait for the images to be recorded and then press **Done**.

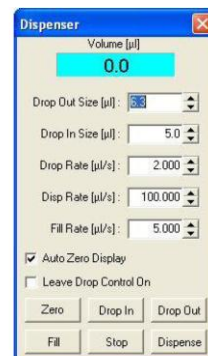


Image B.2: The dispenser controls.



#### 4. Curve Fitting

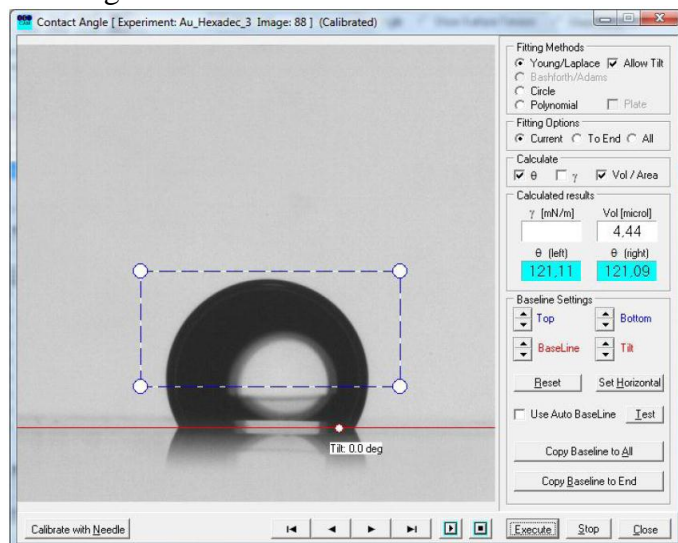


Image 3.18: The Curve Fitting window.

- Select **To End** from the **Fitting Options** box, make sure that **Use AutoBaseline** is selected and press **Execute**.
- Check this visually, and if unsatisfied unselect **Use AutoBaseline** and set it manually by clicking and dragging on the white circle and the toggles available. Place the blue box around the entire drop profile similarly, return to the first acceptable image and press **Execute** again. Press **Close** to continue to data analysis.

## 5. Data Analysis

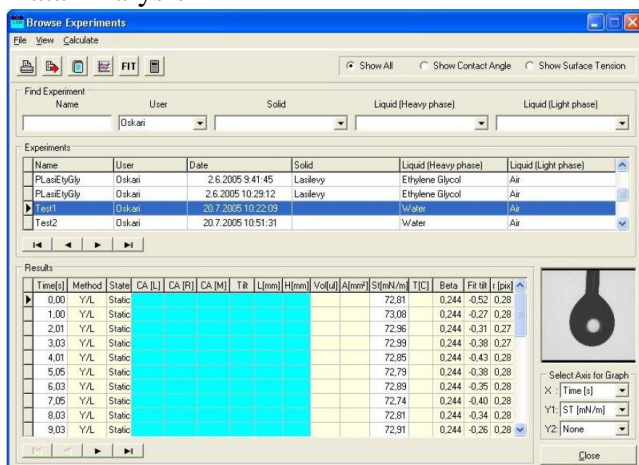


Image 4.2: Conducted measurements are analyzed in the Browse Exps.

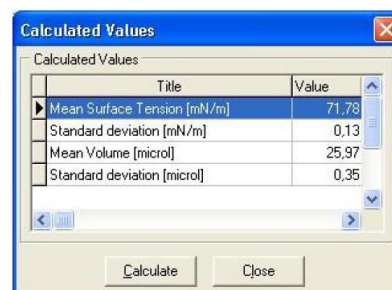


Image 4.3: The Calculated Values shows statistics on the data.

- From the main menu select **Browse Experiments**.
- Use the Find Experiment parameters to find the wanted experiment and select it.
- Right click on it and select Graph. The default graph shows contact angle against time.
- If the contact angle is stable from the beginning of the graph onwards then simply press **Calculate** and from the Calculated Values window press **Calculate** again to view the relevant statistical information available.