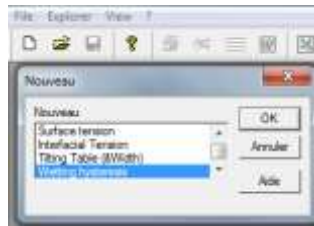
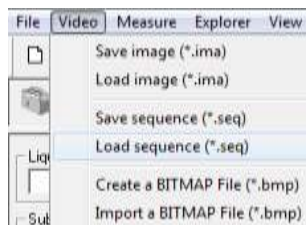


## DETERMINATION OF WETTING HYSTERESIS WITH THE DIGIDROP

1. Open the Digidrop software
2. Click on "File" → "New" and choose "Wetting hysteresis"



3. Click on "Video" and "Load sequence (\*.seq)". Choose for example "Wetting hysteresis".

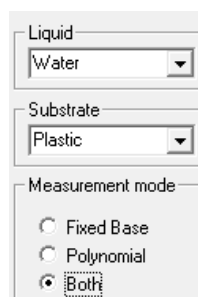


4. Calibrate the pixel: Click on "Measure" and "Height width calibration". Enter the value "0,81mm" for the syringe's thickness (if your needle has reference number 1-1-3-0303).



5. Complete left part of the window  
 Enter the liquid, the substrate and select the measurement mode "Both"

For example here: liquid = water and substrate = plastic



6. To have a better view of the picture, click on “View” and choose “Zoom on image”.  
A window on the right opens.



7. To help the software, select the contact area between the solid surface and the droplet at the time  $T=0$

Spot a point on the left of the droplet.



Spot a point on the right of the droplet. After this, a green line will be drawn.

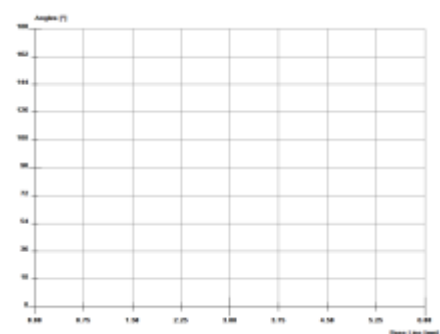


8. To follow the analysis, you can choose different “visualization mode” in the file “Measure”.

- ❖ If you select the mode “Complete list”, you will see this table with all the information you need.

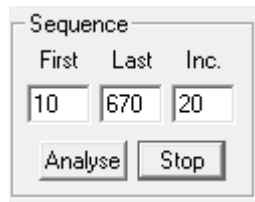
Nb	Liquid	Substrate	L. A.	R. A.	Ave.	Width	S [um/s]	Time	Mode
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- ❖ If you want to observe the evolution of the contact angle in function of the droplet diameter, click on “ Angle/Width Graph”



- ❖ You can also have others graphs of your choice. Select your choice in the file "Visualization mode" as above.

- To observe the analysis, you can choose the period of analysis.** Indeed, you are not obliged to obtain the information about all the analysis. To do this, **complete the number of first picture you want to begin, the number of the last and choose how many pictures the software will analyze. (the increment)**



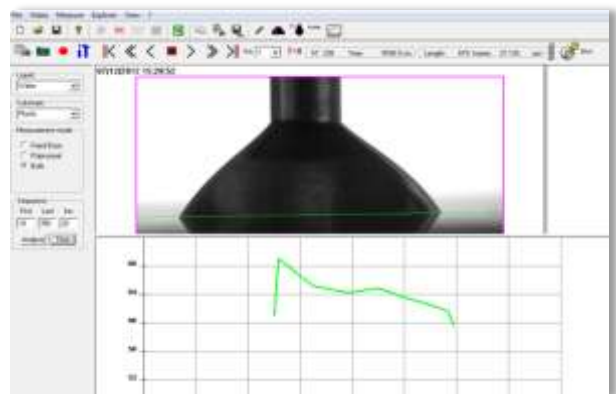
**NB:** The total number of pictures of the sequence is done here if you go at the end of the sequence.

Click on this arrow to go at the last picture of the sequence

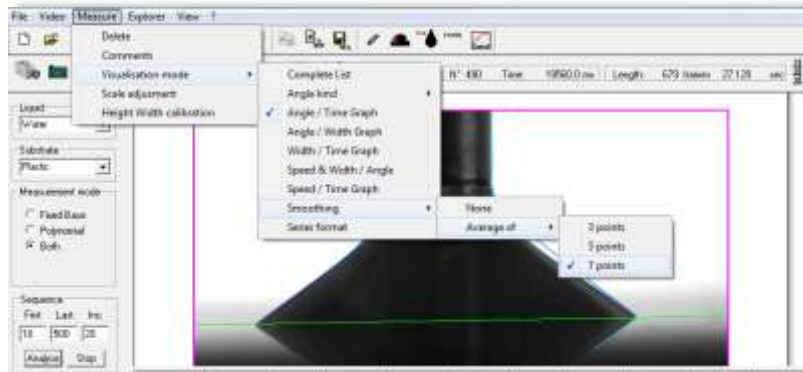


- After doing steps 8 and 9, click on "Analyze" in the frame Sequence and you will see the experience unfold.**

It enlarges the volume droplet then reduces and you observe the droplet detaches from the needle. The contact angle is plotted directly in function of width.



To smooth the curve, click on “Measure” → “Visualization mode” → “Smoothing” → “Average of” and choose the number of point.



When it is finished, you observe an interesting curve representing the wetting hysteresis.

You observe two interesting parts on the graph:

- From one to another value of width, the contact angle is fast constant.
- Then it quickly decreases even if the width does not change. The droplet falls on the surface.

