

# Using the Gretag-Macbeth ColorEye 7000 Spectrophotometer to Measure Transmittance

Katie Carpenter, 7/11/2017

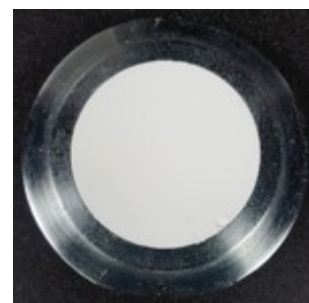
## I. Before turning on the instrument:

1. Make sure the sample holder mount is in place inside the instrument.
  - a. The spring-loaded plate should be oriented so it holds the sample against the far side of the instrument from the front. This way the sample will be held flat against the port where the measurements are made.
2. Make sure the instrument is turned on and the dial on the RS-232 box is pointed to the C position. This will connect the instrument to the computer used to control it.



**Important:** DO NOT update the computer, even if it asks if you want to. It runs on Windows XP and needs to continue to run on Windows XP.

3. For transmittance measurements, make sure a perfect reflecting diffuser (PFD) is in place on the outside of the machine. It will be held in place against the opening by pulling the arm back and covering the opening with the tablet.



## II. Once the instrument is on:

4. Open the OnColor program from the desktop. This is the software that will control the instrument and collect the data.
5. Calibrate the instrument for transmittance.
  - a. Select Options -> Instrument Settings
  - b. Click the Transmittance (%T) option, hit Apply and OK.

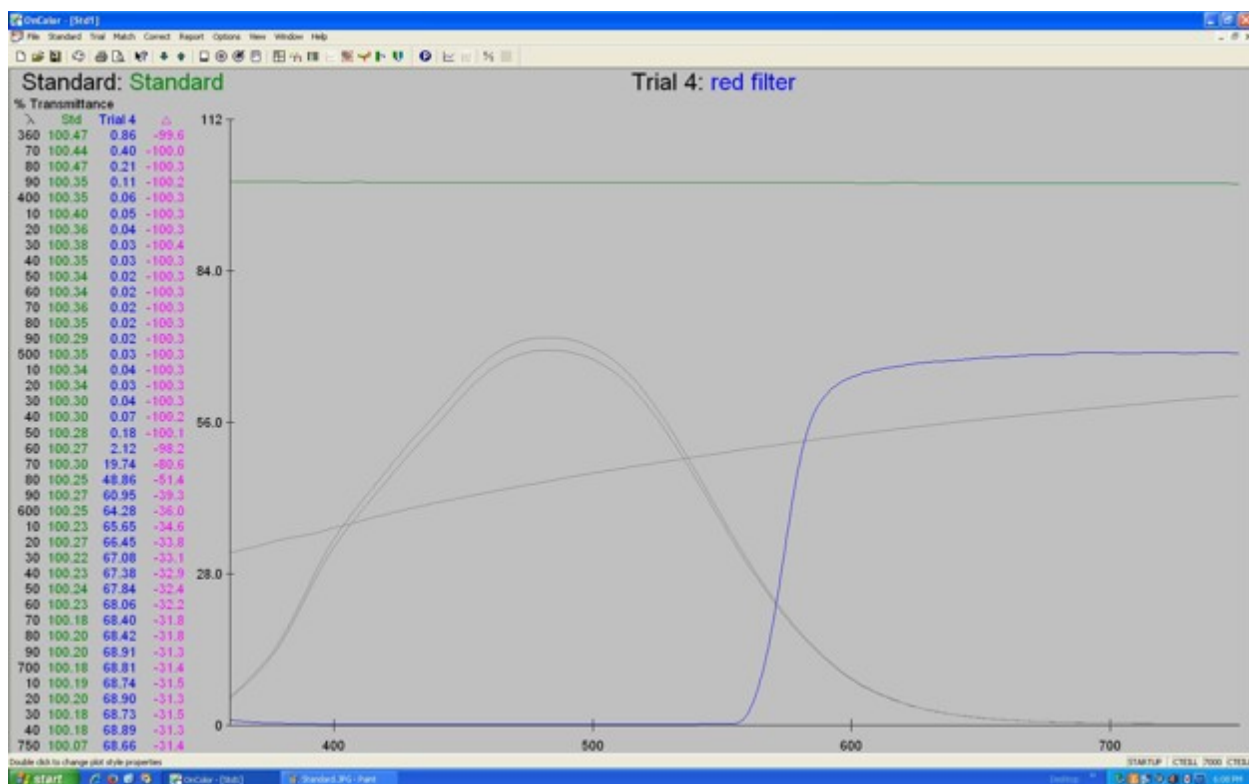


- c. Select Options -> Instrument Settings -> Calibrate  
The program will prompt the user to "Present the clear calibration sample." This will be air, so nothing additional will be required.
6. Hit the S key on the keyboard.

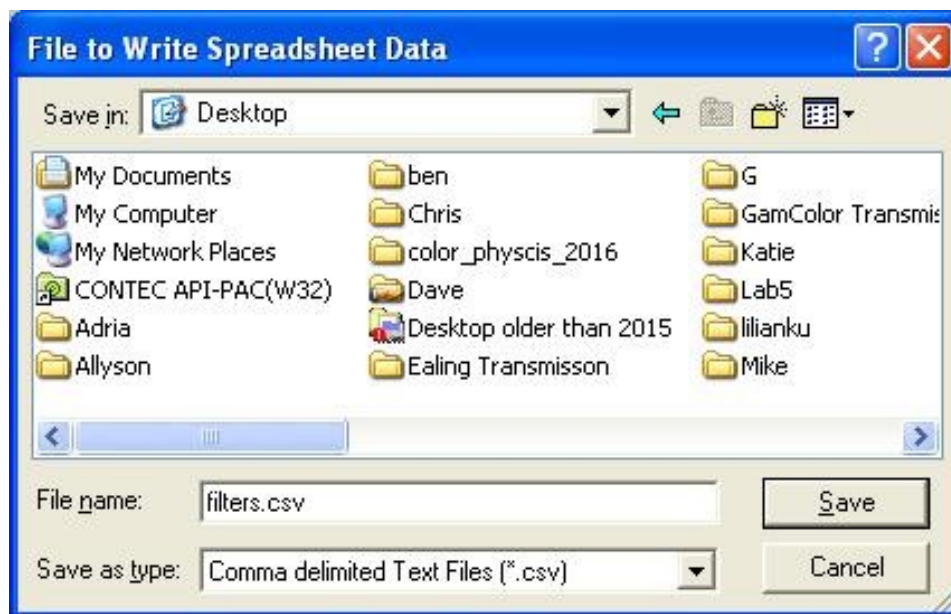
This will create a standard for the set of measurements being taken. The instrument will measure the transmittance of the standard and will use this in making the rest of the measurements. The name of the standard can be changed and notes can be made, though this is not necessary.

7. Hit the T key on the keyboard for each trial measurement.  
This will create a similar window to the one created for the standard measurement. The user can add a name for each trial. Hit OK to make the measurement. A measure of the transmittance of the sample is made every 10 nm in the 360 nm-750 nm range. A spectrum for the trial will be displayed on the screen.

The image shows a software dialog box titled "Naming -- Std1". It has four tabs: "Std", "Options", "Std Defaults", and "Trial Defaults". The "Std" tab is currently selected. Inside the dialog, there are several input fields: "Name:" (40 characters max) with the text "Standard" entered; "Alternate Name:" (40 characters max) which is empty; "System:" (20 characters max) which is a dropdown menu; "Notes:" (80 characters max) which is a large text area; and "Date/Time:" which shows "7/7/2017 - 6:02:30 PM". At the bottom of the dialog are four buttons: "OK", "Cancel", "Apply", and "Help".



8. Once all the trials are complete for a set of measurements, the data can be exported to a spreadsheet for further use.  
 Select File -> Spreadsheet  
 DO NOT select Save or Save As.



Be sure to Select Save as type: .csv so the data is in the form of a usable spreadsheet.

Save to the desktop or directly into a USB drive.