Addendum to UltraScan PRO User's Manual

Description

CMR-3157 provides a "Butacite" program for measuring fade out length, percent transmittance, dominant wavelength, and percent purity at a specified distance from the clear end of a glass sample placed in the UltraScan PRO motorized sample holder (CMR 2826). Typical samples will be automotive glass laminated with Butacite sheeting that incorporates a dark photo band on one side and clear on the other. A function for finding the location of a specified L* value is also included.

The software allows users to adjust COM ports for the motor and the sensor.

The computer requirements for this program are as follows:

- Microsoft Windows XP or better, compatible with Windows 7/ 32+64 bit
- Microsoft Access (any version)
- One serial port or USB port for sensor communications
- One USB port for motorized sample holder communications.

Installation

Complete the following steps to install the software.

1. Disconnect the USB cable between the motorized sample holder and the computer if it has already been connected.
2. Insert the installation CD into your CD-ROM drive.
3. Open Windows Explorer or My Computer and navigate to your CD drive.
4. Run Setup.exe by double-clicking on it.
5. Follow the on-screen prompts install the Butacite program.
6. If you are using the USB to serial port adapter cable for the instrument please leave the CD in the CD-ROM drive.
7. Open the Device Manager tool by going to Start/(right click)My Computer/Manage/Device Manager. Click on the + or arrow character on the Ports COM & LPT item. Note the available serial ports.
8. Connect the sensor to the PC. If using a serial port note the communications port being used. If using the USB to serial port adapter cable, note the serial port

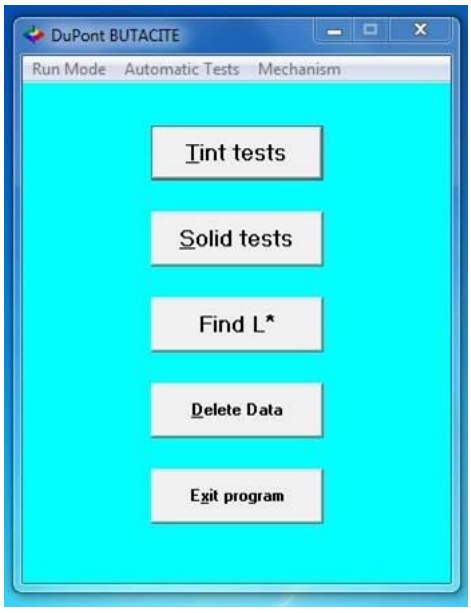
number for the FTDI serial port after it is created (if prompted the driver is on the CD.)

9. Connect the USB cable between the motorized sample holder and the computer. Supply power to the sample holder (i.e., plug it in).
10. Windows will search for a driver for the motorized sample holder. Leave the CMR 3157 installation CD in your computer and the installation should proceed to completion automatically. The system may appear to install the driver twice, but you may ignore this and allow both installations to proceed. Make a note of the serial port number that is added to the Device Manager tool.

Operation

Open the Butacite software by choosing Start/Programs/HunterLab/BUTACITE. When prompted, indicate the serial port where the UltraScan PRO is installed and then the serial port where the motorized sample holder is installed. The sensor will beep and the "DuPont BUTACITE" main menu will appear on the screen. The following options are available:

Tint tests
Solid tests
Find L*
Delete Data
Exit program.

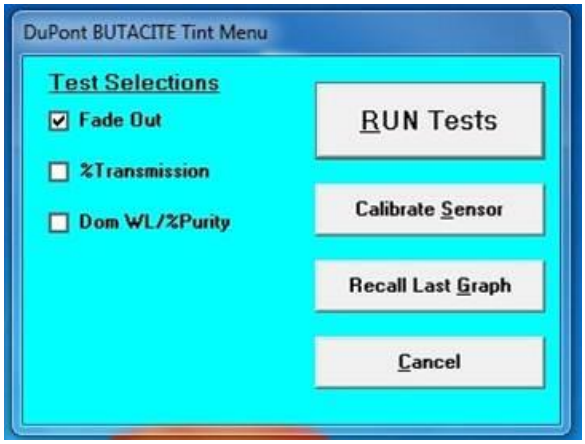


Your first action should be to access the **Mechanism** menu and choose the appropriate traversing mechanism length. This will typically be 10 inches.

Tint tests

When the **Tint tests** option is chosen, the following “DuPont BUTACITE Tint Menu” appears. The available options are:

RUN Tests
Calibrate Sensor
Recall Last Graph
Cancel



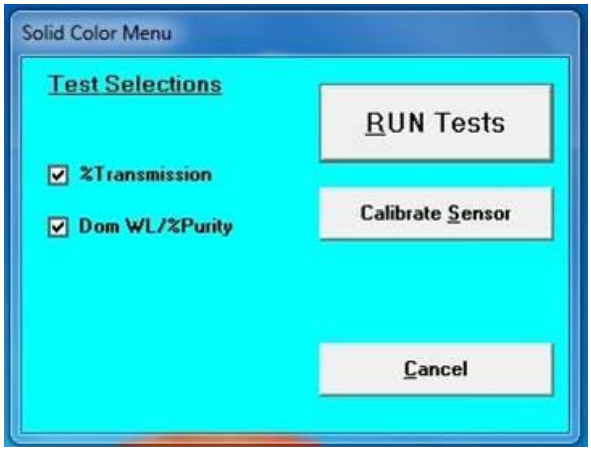
*Note: If the **RUN Tests** button is grayed out, the standardization interval has expired or standardization has not been performed. Select **Calibrate Sensor** and standardize before performing any tests.*

Under the “Test Selections” list, you may click on one or more of the available tests with Fade Out as the default setting.

Fade Out
% Transmission
Dom WL/% Purity (Dominant Wavelength/Percent Purity)

Solid tests

Similarly, when the **Solid tests** option is chosen, “RUN Tests,” “Calibrate Sensor,” and “Cancel” actions are available from the “Solid Color Menu.” Test selections available are “% Transmission” and “Dom WL/% Purity.” The default setting is to run both tests. These are fixed position tests. The sample should be placed in the holder with the test area in the view path. The Fade Out test is not available for solid-color samples.



Calibration
To calibrate the sensor, select **Calibrate Sensor** from the "DuPont BUTACITE Tint Menu," the "Solid Color Menu," or the "Set parameters for finding L*" screen and follow the prompts. Following calibration, the "DuPont BUTACITE Tint Menu," "Solid Color Menu," or "Set parameters for finding L*" screen will reappear.

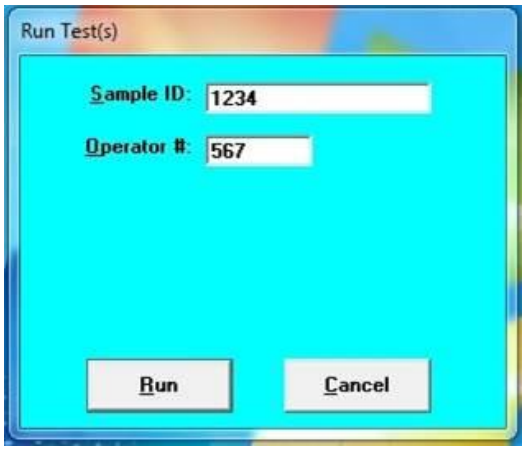
Note: The UltraScan PRO must be operated with the transmission compartment door open when the motorized sample holder is in place. This will not have any effects on the results.

Reading Samples

Tint Test

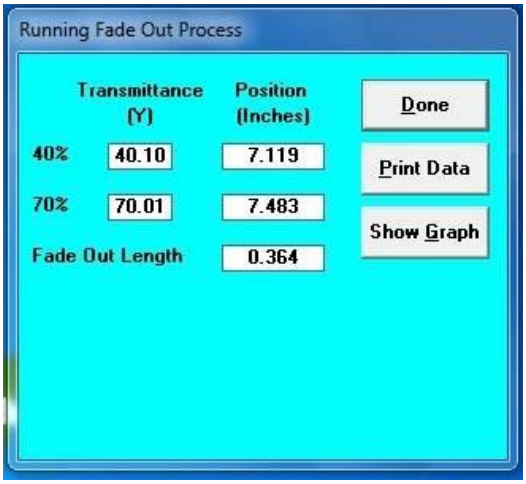
Fade Out

To read samples, select **RUN Tests** from the "DuPont BUTACITE Tint Menu." A box titled "Run Test(s)" will appear on the screen. Enter a Sample ID of up to 30 characters and your Operator Number where requested. Both a Sample ID and an Operator Number must be entered for the test to run. Click **Run**.



A “Position Verification” box will appear. Follow the prompt for placement of the sample with the clear end toward the motor and the transport table (sample holder) in the “A” position. Click **OK**.

The “Running Fade Out Process” box appears. You will see the data from each fade out point tried reported and updated as the sequence proceeds. When the sensor has found the correct point of 40% transmittance and then 70% transmittance, the fade out length will be placed in the appropriate box on the screen and all data will be automatically saved to the computer’s hard drive (at C:\Program Files\Butacite\Butacite.mdb if you installed the software to the default location).



Note: Clicking on Stop while any test is running will cause the program to complete the current step, return the sample to the “home” position, and exit the test menu.

% Transmission and Dominant Wavelength/% Purity

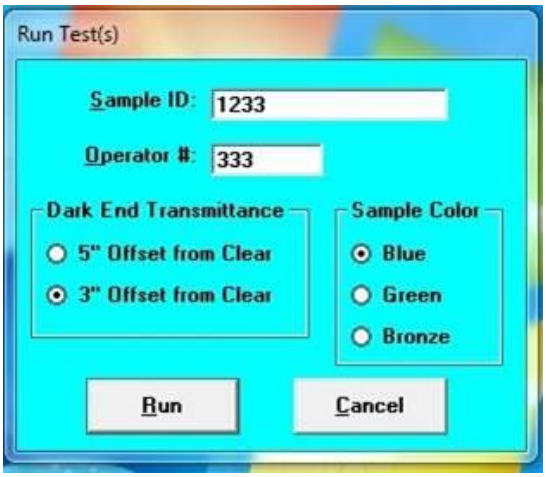
If the Fade Out test and other tests have been chosen from the “DuPont BUTACITE Tint Menu,” the additional tests will automatically begin after the Fade Out test is completed. Alternatively, you may choose tests other than Fade Out from the “DuPont BUTACITE Tint Menu” and select **RUN Tests** to begin those tests. The % Transmission test is run first, while the transport table is still in the “A” position.

Note: A “Position request error” message may appear if the distance requested exceeds the available distance on the sample. If you receive an error message, contact your supervisor to confirm whether 3-inch movement is actually of interest. The program will skip the % Transmittance Test if the position request error appears and will continue on with the next test(s). If data is printed out, the % Transmission field will be blank.

Next, you will be prompted to adjust the sample holder to the “B” position. Do so and then click **OK**. In the “Running DW/% P Test” box, the data boxes for %Transmission, Dominant Wavelength, Percent Purity, and the Color Value (i.e., 21% for blue) will fill as data is collected and saved to the hard drive for the chosen tests.

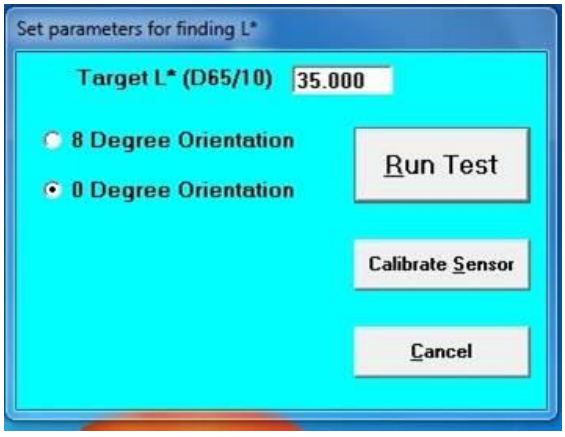
Solid tests

If tests have been chosen from the “Solid Color Menu,” click **RUN Tests**. In the “Run Test(s)” box, enter the Sample ID and Operator Number and indicate the sample color. Click **Run**. Place the transport table in the “B” position when prompted and click **OK**. In the “Running % Transmission Test” box, the data boxes for % Transmission, Dominant Wavelength, Percent Purity, and Color Value will fill as data is collected and saved to the hard drive for the chosen tests.



Find L*

When **Find L*** is chosen, the following screen appears:

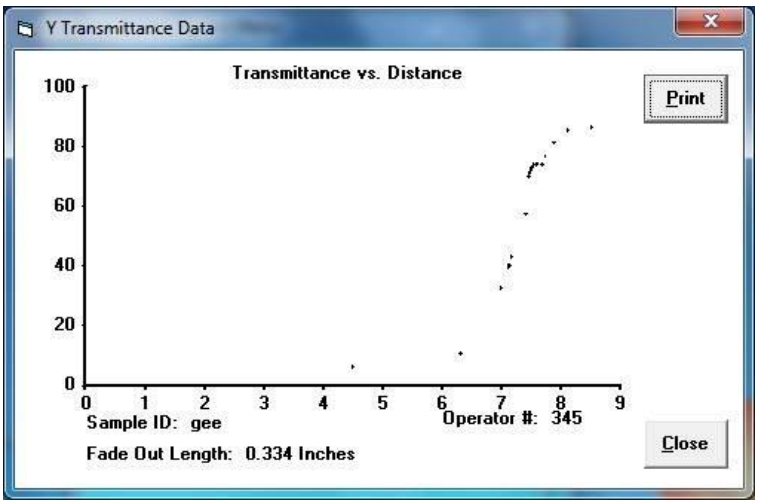


Enter the L* (lightness) value to seek and indicate which orientation you wish to use. When you click **Run Test**, you will be prompted to place the transport table in the proper position and to click **OK**. The UltraScan PRO will read while the motorized sample holder moves the glass until the position of the desired L* value is found or until the entire span of glass is scanned without locating the desired value.

Other Functions

At this point you may elect to print the data or show the graph of all points tried by clicking on the appropriate selection. If **Print Data** is chosen, the Y Transmittance vs. Position (inches) plot will be printed to the Windows default printer. When printing is complete, click **Done**.

Selection of **Show Graph** plots the data to the screen. You may also choose to print the graph from this screen. When finished viewing or printing a graph from this screen, click **Cancel**.



After all desired tests on a sample are completed, click **Cancel** from the test menu. The "Run Test(s)" box will reappear to allow measurement of more samples. Enter the

Sample ID and Operator Number for the next sample, or click **Cancel** if all samples are completed.

If **Cancel** is selected, the “DuPont BUTACITE Tint Menu” or “Solid Color Menu” will reappear. **Cancel** will return you to the main menu and allow you to exit the program.

“Recall Last Graph” in the “DuPont BUTACITE Tint Menu” allows you to view and/or print the data from the last fade out measurement taken.

Selection of **Delete Data** from the “DuPont BUTACITE” Main Menu brings up the “Delete Data From File” window in which you can enter a date prior to which all data will be deleted. Be sure to use the specified format (mm/dd/yyyy). Click **OK** to delete, or **Cancel** to cancel and return to the main menu.

From the **Run mode** menu you may check automatic, if desired. If you do so, the **Automatic Tests** menu becomes active. From this menu you may select the tests you wish to run automatically when you click **RUN Tests** on either the DuPont BUTACITE Tint Menu or the Solid Color Menu; you will not need to select these tests again on the menus.

A motor test program is also installed with CMR 2939 that allows you to test the motor functions.

Changing Parameters

The factory default measurement parameters currently installed in the software are as follows:

Maximum standardization time in hours = 8
Lower target value (% transmittance) = 40
Higher target value (% transmittance) = 70
Lower target tolerance = 0.05
Higher target tolerance = 0.05
Maximum readings before failure = 50
Blue target value = 21
Blue tolerance = 0.1
Green target value = 35
Green tolerance = 0.1
Bronze target value = 25
Bronze tolerance = 0.1

These parameters may be changed at any time by creating an ASCII text file named DEFAULT.TXT in the program directory and listing the desired values for the parameters.

For example, the DEFAULT.TXT file for the default parameters listed above would be entered as follows:

DEFAULT.TXT

8
40
70
0.05
0.05
50
21
0.1
35
0.1
25
0.1