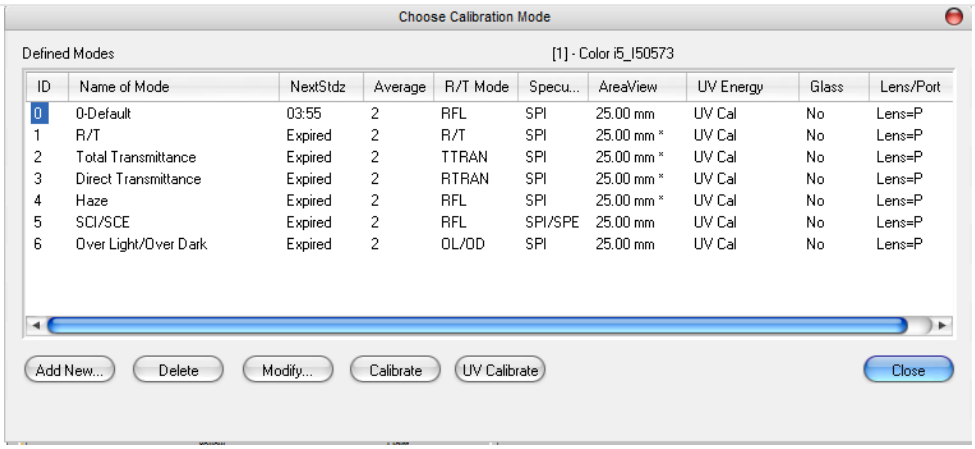
Color iQC and Color iMatch
How to Guide

Version 8.0 | July 2012

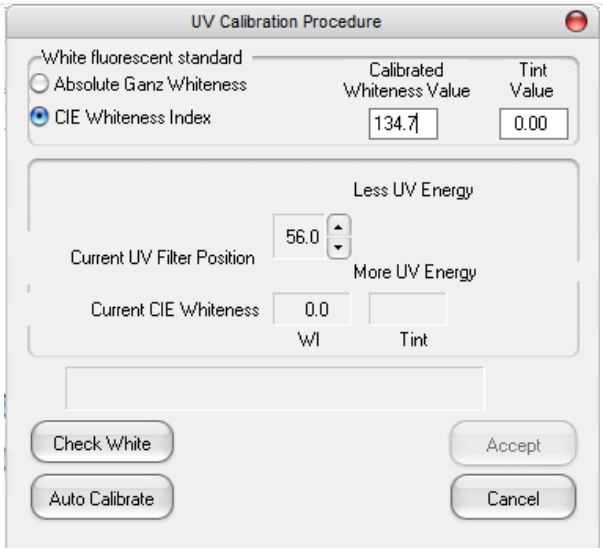
Contents

Calibration

How can I calibrate the UV?

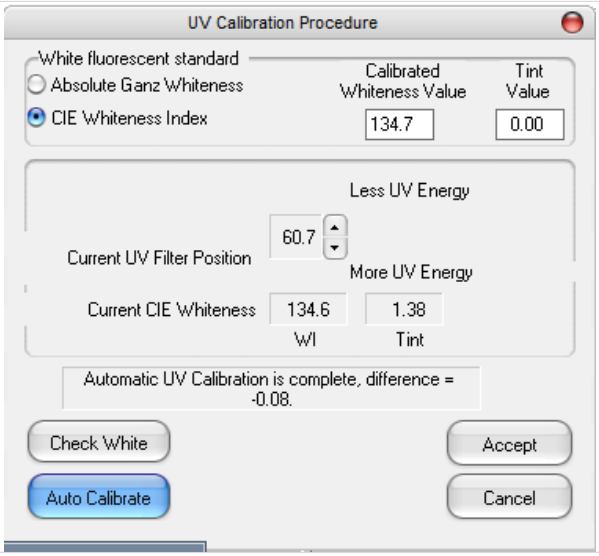


Select the measurement mode and perform a normal calibration. Once this is finished you can select within the Calibration Mode selection – the option UV-Calibrate.



With the i5 or i7 instrument a white plastic chip with a defined CIE Whiteness value is provided.

Enter the Calibrated Whiteness Value in the proper information field, place the chip in front of the spectro and press [Auto Calibrate]



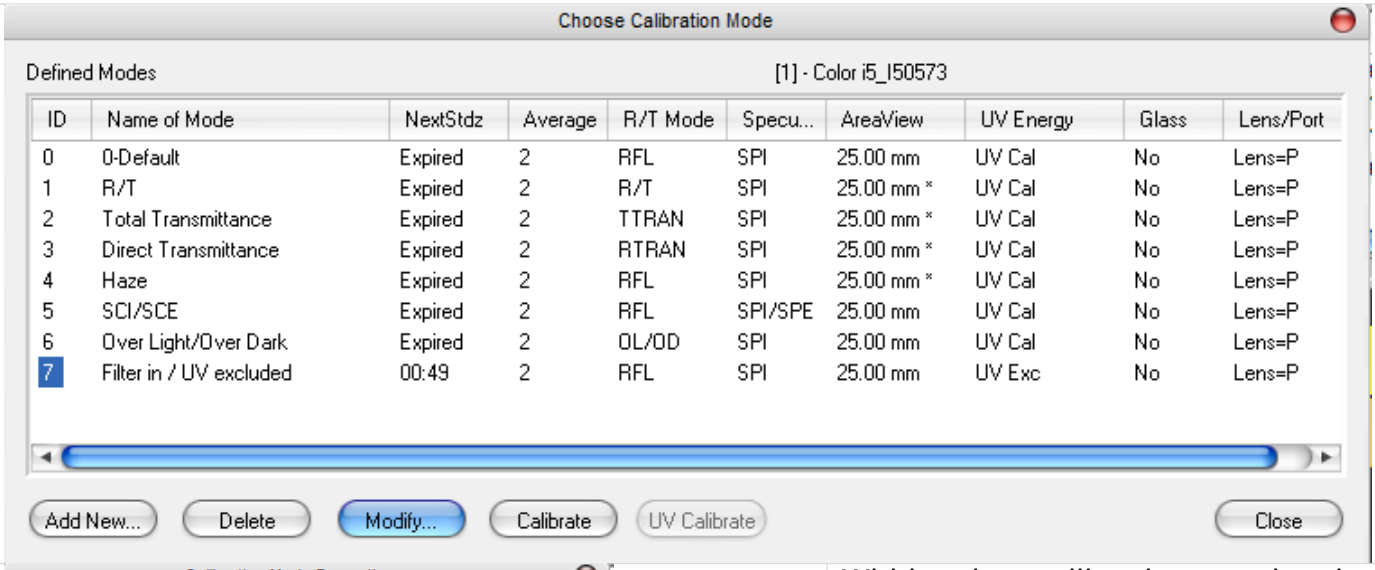
At the end of the Calibration procedure the Current UV Filter Position, the Current UV Whiteness and the Automatic UV Calibration Difference is reported.

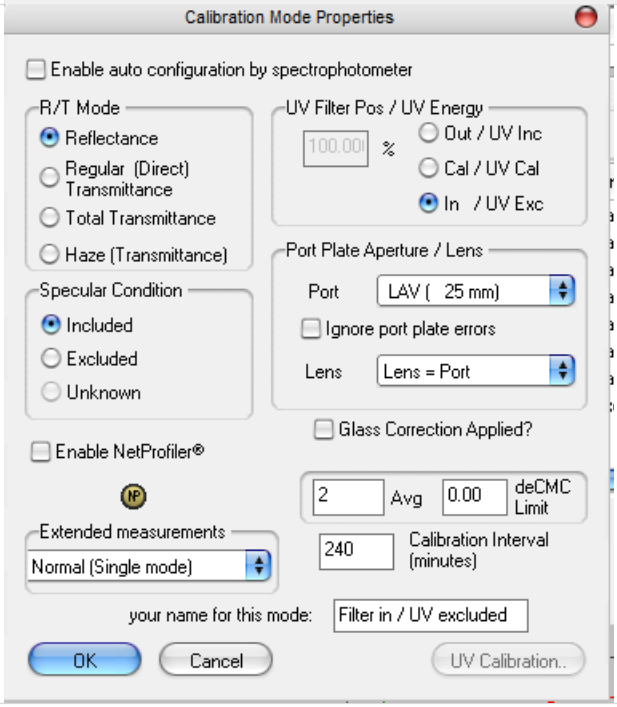
Typically result will be within 0.2

Accept the UV calibration and repeat a regular calibration procedure.

How can exclude the complete UV?

In order to exclude the UV completely a calibration mode will have to be set up





Within the calibration mode the setting Filter In / UV Exc will have to be selected

Once this has been done an instrument calibration will have to be made.

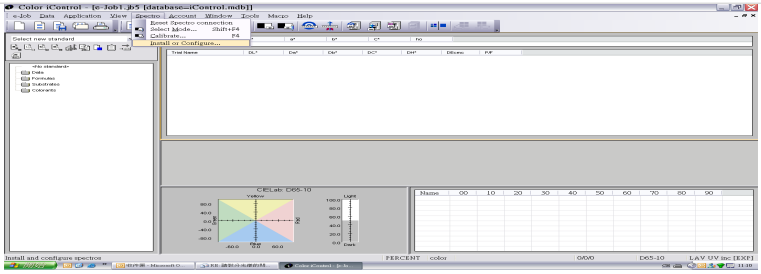
How can include the complete UV?

Color iQC does not offer the option include complete UV. Whenever this option is selected the instrument will automatically use UV cal. There is a reason for it.

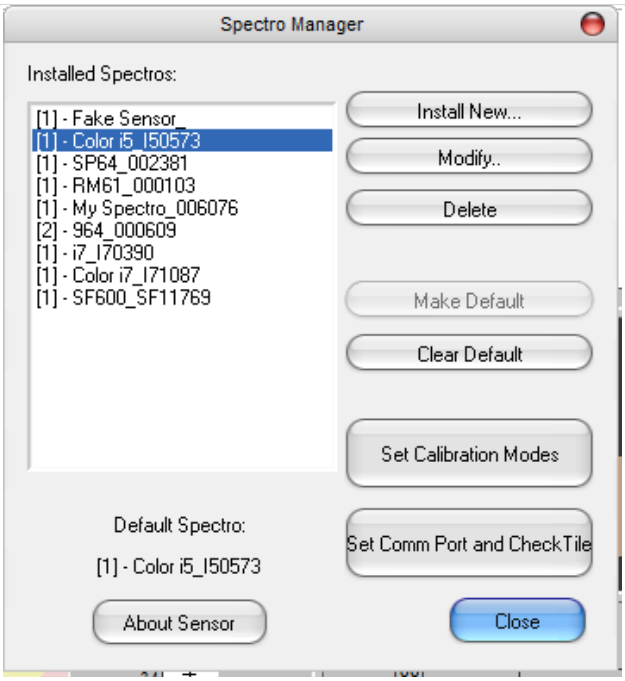
The UV content of a Xenon lamp has an impact on the reflectance data, if samples such as textiles or paper contain optical brighteners.

If the instrument works without the UV filer (or calibrated UV) the UV content of the Xenon Lamp will depend on the age of the lamp. Since UV content has an impact on the reflectance data, different reflectance data would be achieved depending on the age of the lamp. It would be nearly impossible to achieve a good inter instrument agreement.

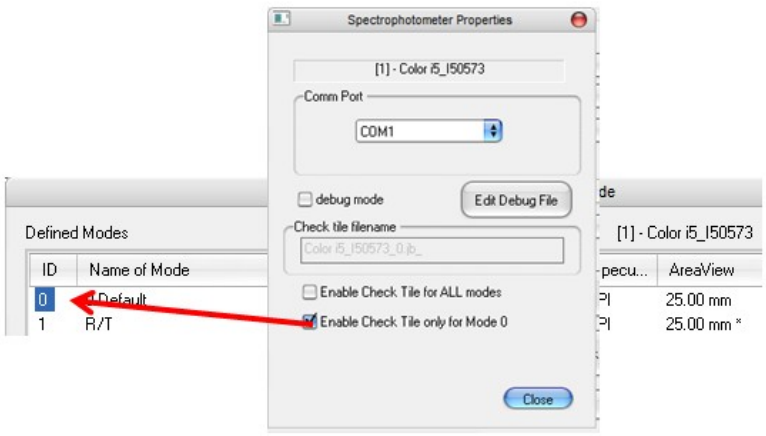
How can I activate a green tile test after the calibration?



1. Main menu, select spectro, and install or configure.



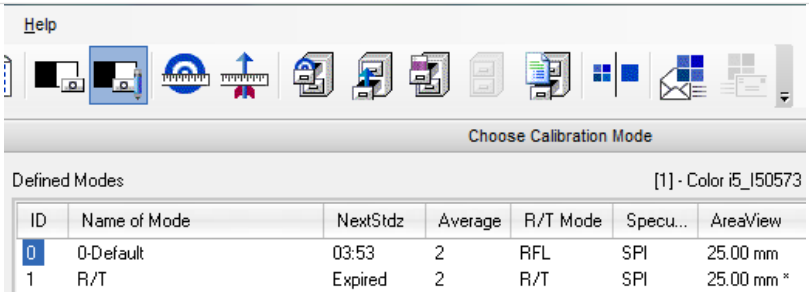
2. Select your spectro, eg color i5; and then click "**set Comm Port and check tile**" button.



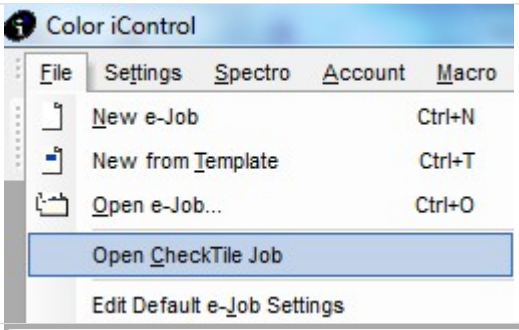
3. Select which mode you need to do green tile check.

   Mode 0, means only the first cal. Mode, which mode ID is 0.

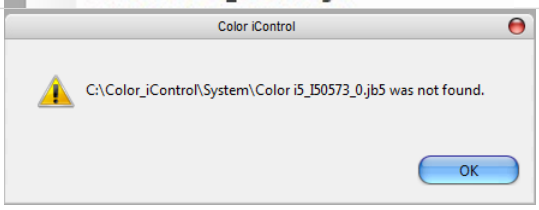
   All modes, means all cal. Mode ID need to do green diagnostic test.



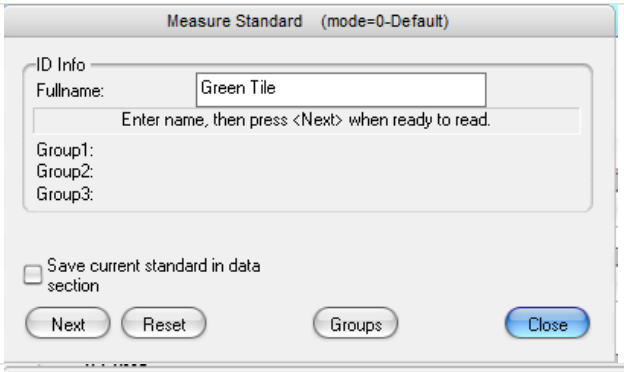
4. Open a new job, go to “Select Mode” and select a cal. mode that you want to set green tile diagnostic test.
   (Make sure you had done calibration on each mode before you come to this step, if not, switch off the check tile and go calibrate your spectrophotometer first.)



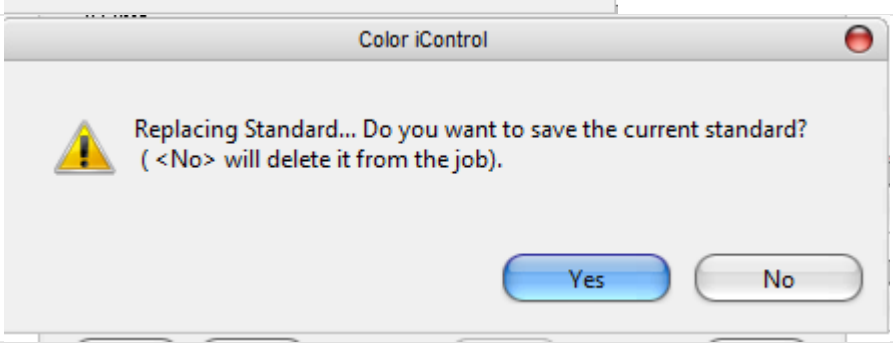
5. Then close job…
6. Go to File, and select “Open Check Tile Job”.



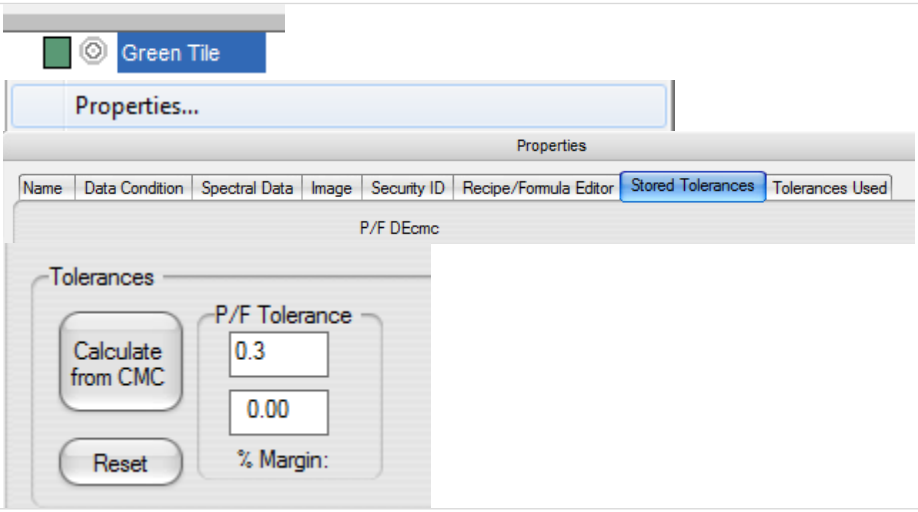
7. Color iQC and Color iMatch realizes, that the proper job is not yet available and places the warning on the screen. It will automatically create a Green Tile test job.



8. Enter the name and go through the measurement sequence Uncheck the “Save current standard in the data segment”

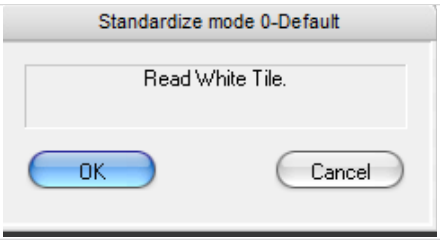


9. At the end confirm, that the standard should be saved.

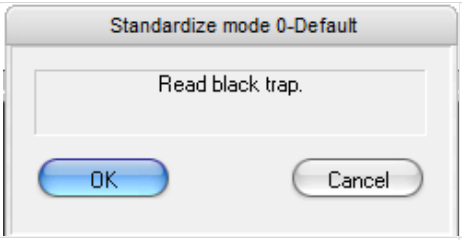


10. It is recommended to enter Pass/Fail Tolerance to the standard.
Mark the tile in the data Selection Windows selects the properties.
In the standard properties select Stored Tolerances
and enter a tolerance of 0.3

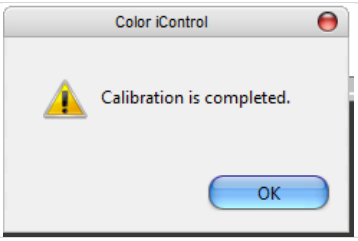
When a calibration for the calibration mode 0 is done automatically a read check will be imitated



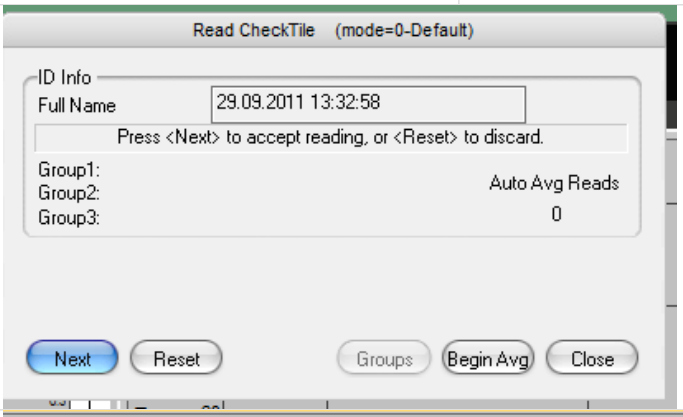
White Calibration



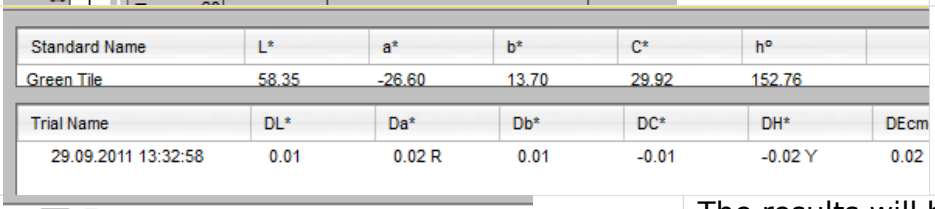
Black Calibration



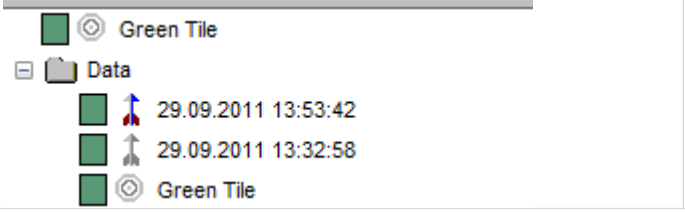
Calibration is finished



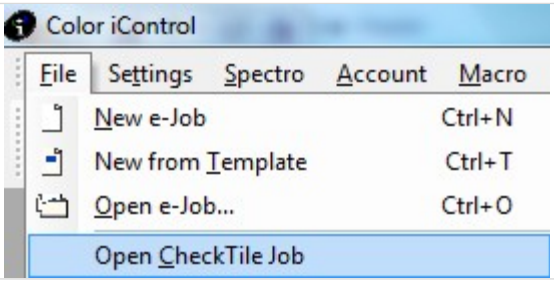
11. Once the calibration is finished the check tile test will come up.
Place the green tile in front of the spectro and start a normal measurement routine.



12. Once the calibration is finished the results will be shown. If outside of tolerance the calibration will be rejected.



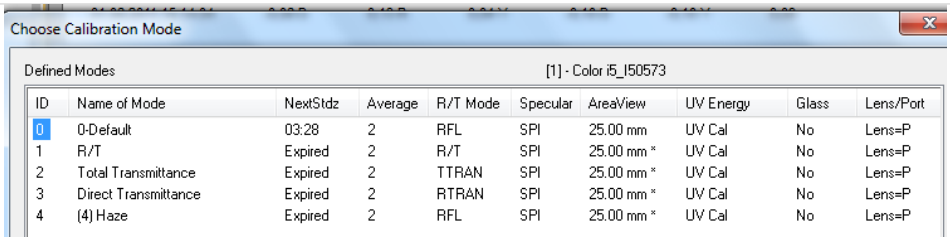
The results will be saved in the job.



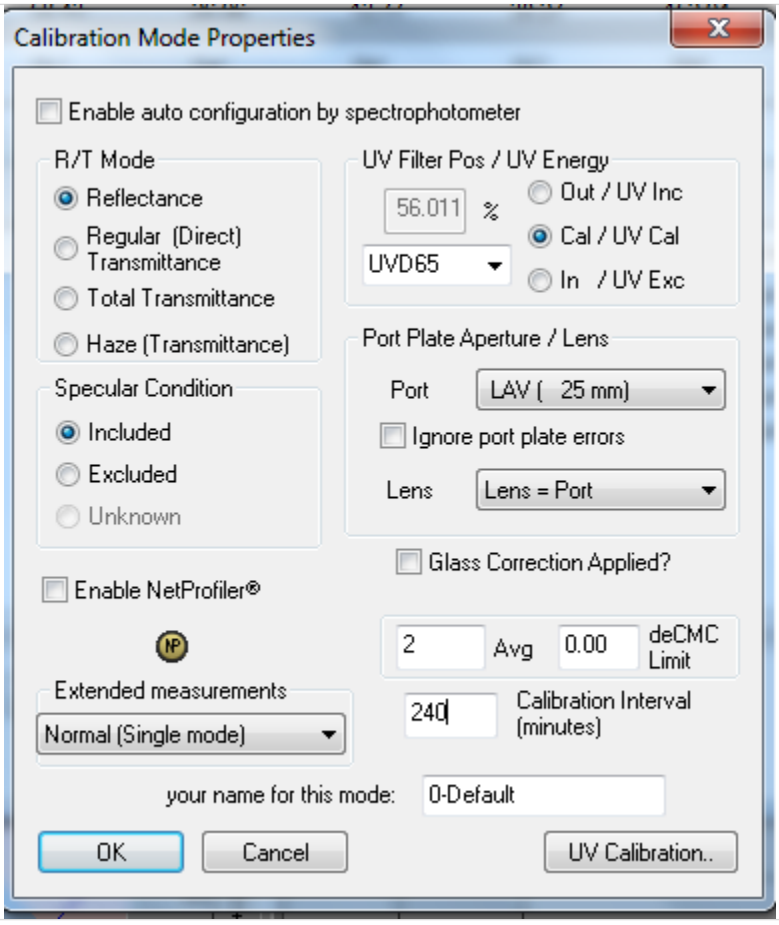
In order to evaluate the results of the CheckTile Job close all jobs.
Select File –
Select Open CheckTile Job
Now you can analyze the data.

How can I set the calibration time control?

Most customers like a automatic reminder to calibrate the instrument when it`s reqired



For each of the calibration modes there is a timer for the next calibration. This can be changed using the modify option



In the Calibration Mode Properties the calibration Interval can be set.
The typical recommendation is 240 Minutes.

Attention: if the time is set to “0” there will be **NO** time control.
This can be useful, if you do want to do long term measurements and do not want to have any interruption by the calibration.

This can be useful, if you use self calibrating instruments portable spectrophotometers like the Spectro Eye or other portable devices like the SP or 900 series, which do have their own internal time control.

Measurement

How can I measure Gloss with my instrument?

Color iQC | Color iMatch Gloss and SRR Gloss

Gloss in Color iQC and Color iMatch applies to measurements made on a sphere instrument where SPI and SPE are possible, and uses an equation developed by X-Rite for each instrument that is correlated to a 60 degree gloss meter for paint samples on paper. It is generally pretty close to an actual gloss meter within the normal ranges of 20-80 but may be different somewhat at the low or high ends of the range. Every spectro has a different form of the equation to account for differences in sphere size, number of holes, size of specular port, etc. X-Rite has a specific equation for CE7000, Color i5/i7, XTH, and SP62/64. All other sphere spectrophotometers use a general equation and may not agree as well. The ASTM method that applies to this is D523. However the type of equipment required by D523 does NOT include sphere instruments. Therefore the equation gives us a "correlated gloss" value rather than a "60 degree gloss" value.

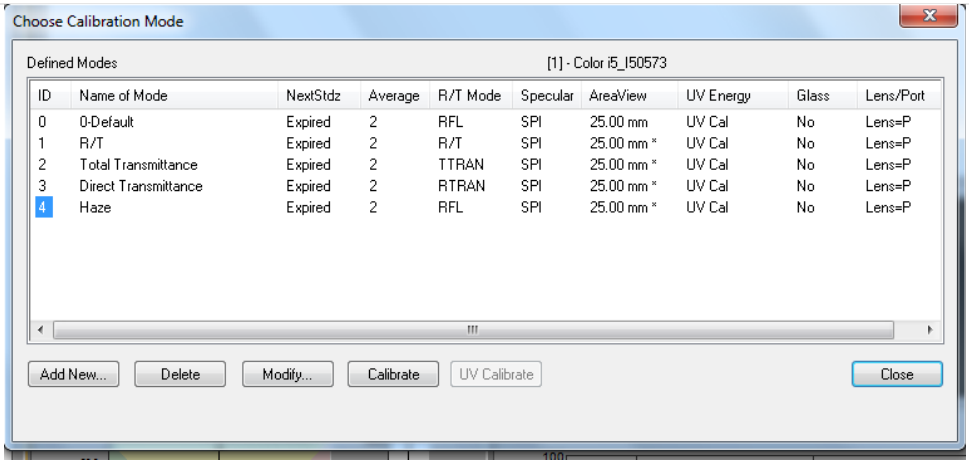
SRR Gloss in Color iQC and Color iMatch is "Specular Reflectance Ratio" and is defined as ASTM method E429 (not E463). This method is titled "Measurement and Calculation of Reflecting Characteristics of Metallic Surfaces Using Integrating Sphere Instruments" , and in general is useful for describing the specular reflectance from surfaces that are somewhat glossy. An inverse value called "diffuse reflectance ratio" is normally calculated for comparing metallic surfaces which are matte however the DRR value is NOT contained in color iQC or Color iMatch.

The methods will give similar relative comparative results between several samples – but the values themselves will be different.

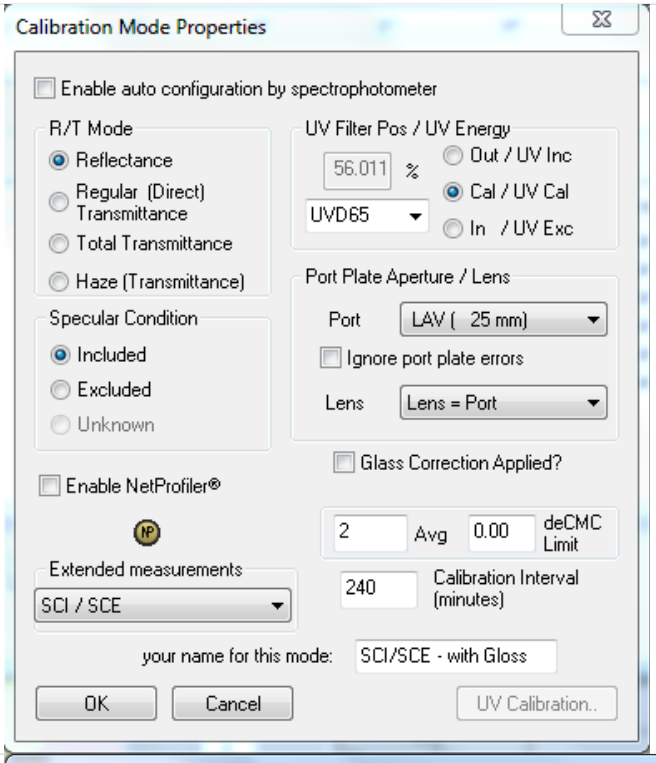
Additional Notes: RFW 2Dec2010

- GLOSS60 calculation can be performed in the Color i5 (if it has firmware 2.0 or higher) and transferred to the software during any measurement – otherwise the GLOSS60 value can ONLY be calculated if the measurement is extended SCI/SCE.
- SRR Gloss can only be calculated from an extended SCI/SCE measurement.
- Gloss60 is a "correlated" equation using an instrument model specific equation developed by X-Rite to correlate a sphere measurement to a 60 degree gloss meter. The equation has been improved in version 6.2 for most sphere instrument models.
- SRR_Gloss is an ISO method of calculating gloss (Specular Reflectance Ratio) that is typically used when measuring materials that are highly glossy (such as metals).

- First step - prepare the calibration mode for the gloss measurement



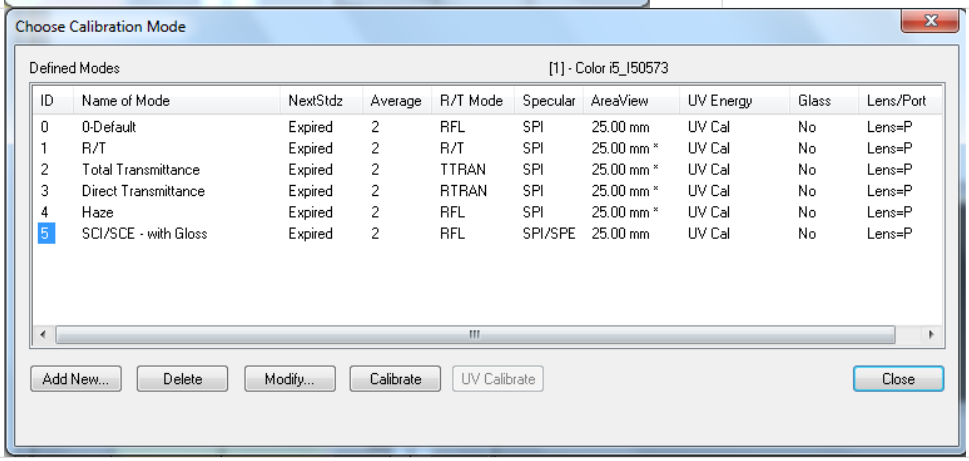
Open the Calibration Mode Windows [Shift] + [F4] - and click [Add New]



Select the following settings:
Remove the check next to "Enable auto configuration by spectrophotometer"
R/T Mode = Reflectance
Specular Condition = Included
Extended Measurements = SCI/SCE
UV Filer Pos/UV Energy = UVD65/Cal/UVCal

Enter a name for this calibration mode

Press [OK] to leave the Calibration mode properties.



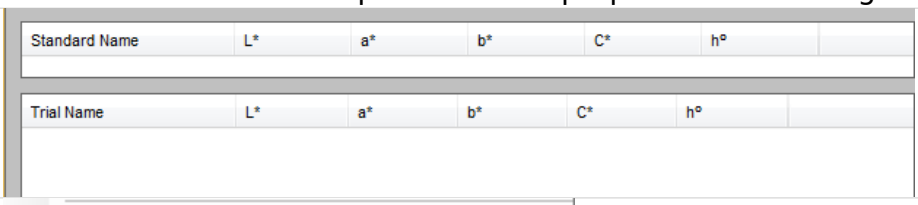
A new calibration mode has been added now.

Select mode 5 and calibrate it with the normal calibration procedure.

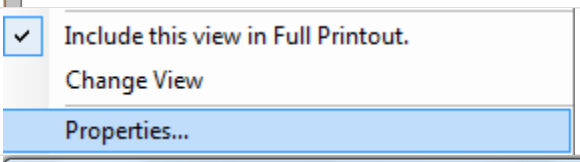
The calibration will include SCI and SCE

Click [Close] to leave the box

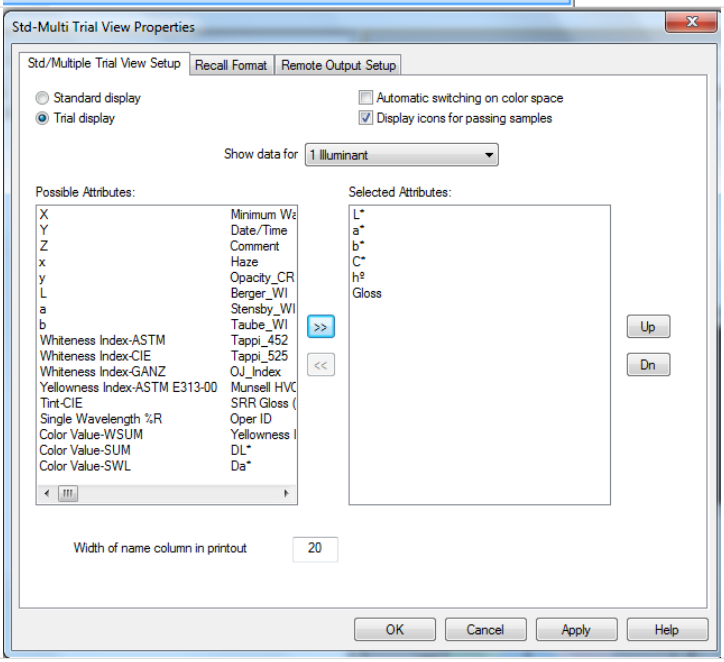
- Next the data output has to be prepared to include gloss



Make a right mouse click into the multi trial data view



From the right mouse key mouse key menu - select properties



From the possible Attributes (left side) select Gloss and press the button facing to the right side and include the Gloss into the list of Selected Attributes.

If you want you can move it to a different position within the list.

Press [Apply] and press [OK].

Next - take measurements using the measurement routines for trails and measure

Trial Name	L*	a*	b*	C*	h°	Gloss
X-Rite Gloss Chart 1	25,19	0,09	-0,92	0,93	275,56	4,99
X-Rite Gloss Chart 2	24,74	0,14	-0,98	0,99	278,25	13,37
X-Rite Gloss Chart 3	24,65	0,04	-0,87	0,88	272,71	32,36
X-Rite Gloss Chart 4	24,65	-0,00	-0,84	0,84	269,96	32,90
X-Rite Gloss Chart 5	24,94	0,07	-0,96	0,97	273,93	57,48
X-Rite Gloss Chart 6	25,25	0,07	-1,13	1,13	273,32	92,62

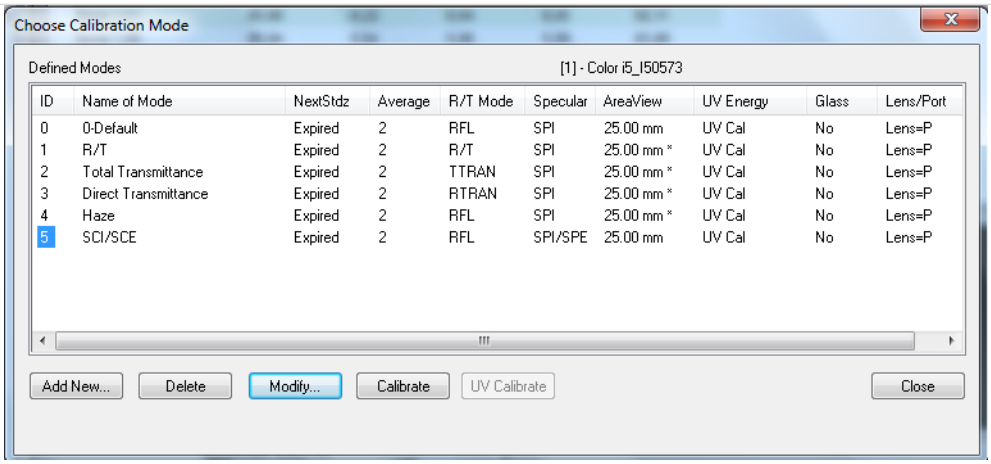
The results will be shown in the multi trial data display

The correlated gloss data will be included.

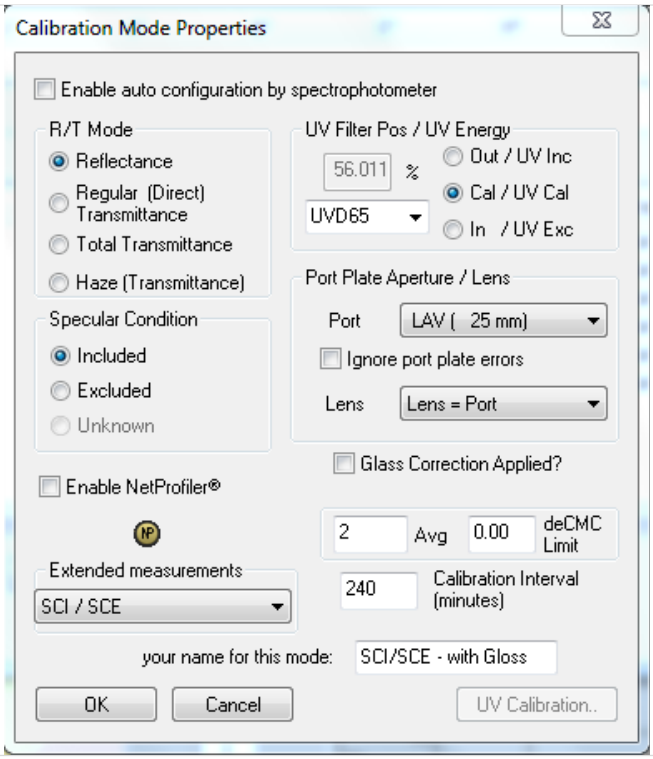
How can I measure SCI and SCE?

This measurement option is available with the Color-Eye XTH, Color i5, and Color i7, 7000-instruments SP-Series.
For SP-Series Instruments all measurements must be made with SCI/SCE to be able to use the automatic standard defininition in the instrument.

- First step - prepare the calibration mode for the gloss measurement



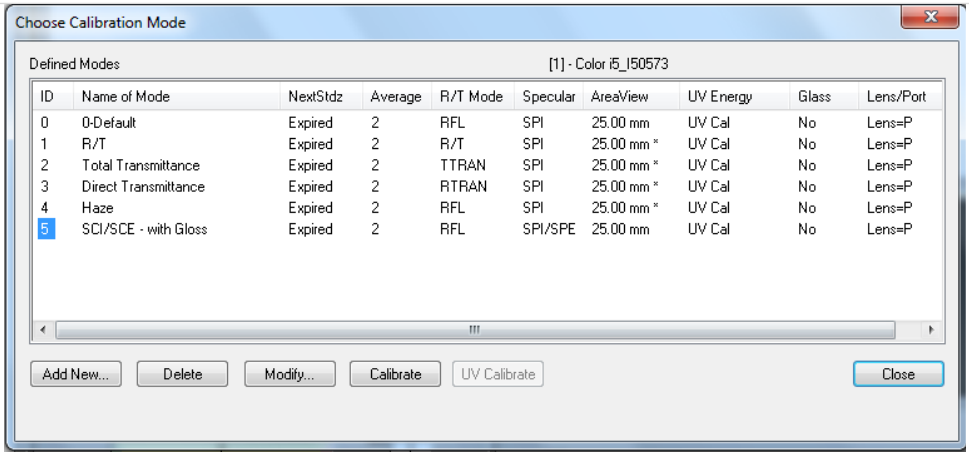
Select a calibration mode for SCI/SCE measurement. If it is not yet available to you have to create one.



Select the following settings:
Remove the check next to "Enable auto configuration by spectrophotometer"
R/T Mode = Reflectance
Specular Condition = Included
Extended Measurements = SCI/SCE
UV Filer Pos/UV Energy = UVD65/Cal/UVCal

Enter a name for this calibration mode

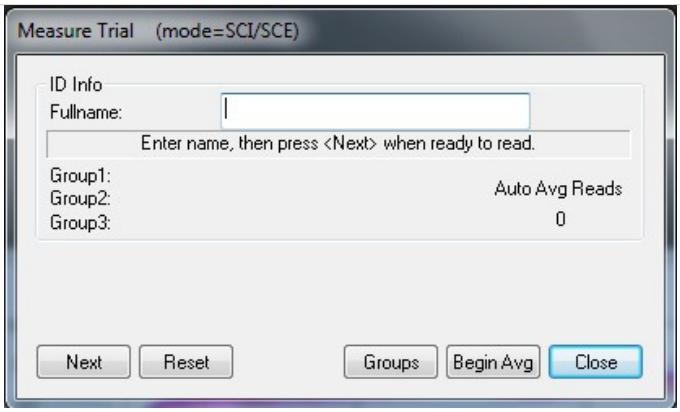
Press [OK] to leave the Calibration Mode Properties Window.



Select mode 5 and calibrate it with the normal calibration procedure.

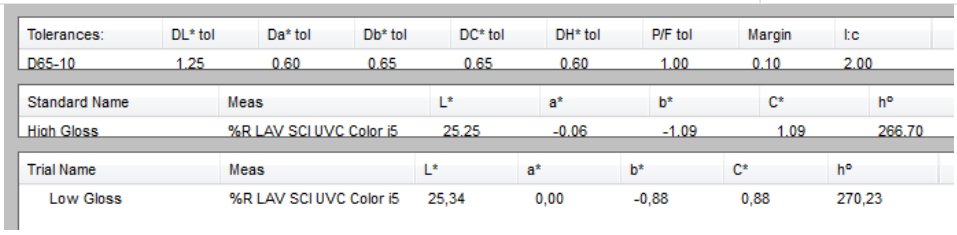
The calibration will include SCI and SCE

Click [Close] to leave the box



Take measurements in the known way.

The Measure Trial Windows will have the information mode (SCI/SCE) in the header.

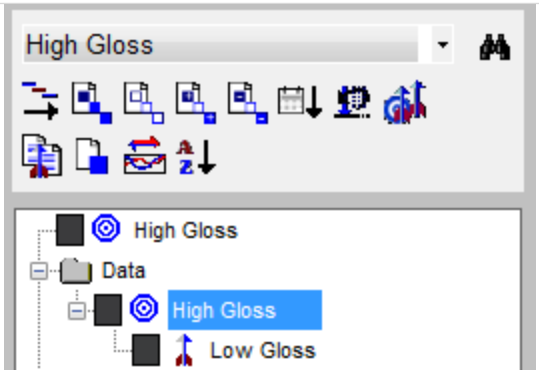


Tolerances:	DL* tol	Da* tol	Db* tol	DC* tol	DH* tol	P/F tol	Margin	I:c
D65-10	1.25	0.60	0.65	0.65	0.60	1.00	0.10	2.00

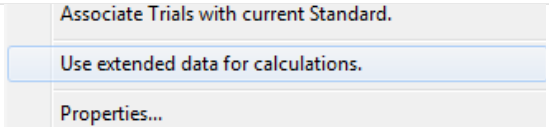
Standard Name	Meas	L*	a*	b*	C*	h°
High Gloss	%R LAV SCI UVC Color i5	25.25	-0.06	-1.09	1.09	266.70

Trial Name	Meas	L*	a*	b*	C*	h°
Low Gloss	%R LAV SCI UVC Color i5	25,34	0,00	-0,88	0,88	270,23

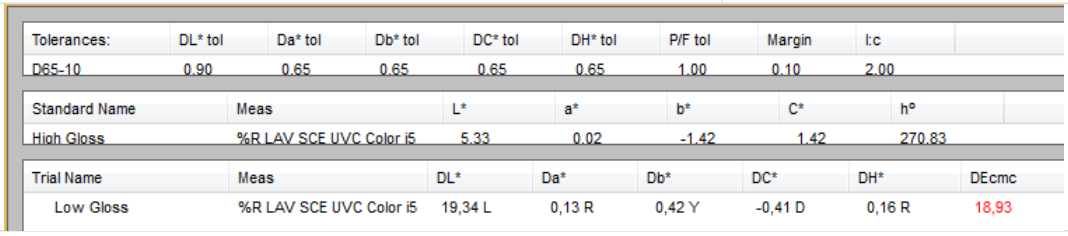
The data will be shown in the multi-trial data view. To provide more clearance the measurement condition has been added to the view.



In order to change the display of data to SCE mode, do a right mouse key click into the data section of tree view.



Select “Use extended data for calculation”



Tolerances:	DL* tol	Da* tol	Db* tol	DC* tol	DH* tol	P/F tol	Margin	l:c
D65-10	0.90	0.65	0.65	0.65	0.65	1.00	0.10	2.00

Standard Name	Meas	L*	a*	b*	C*	h°
High Gloss	%R LAV SCE UVC Color i5	5.33	0.02	-1.42	1.42	270.83

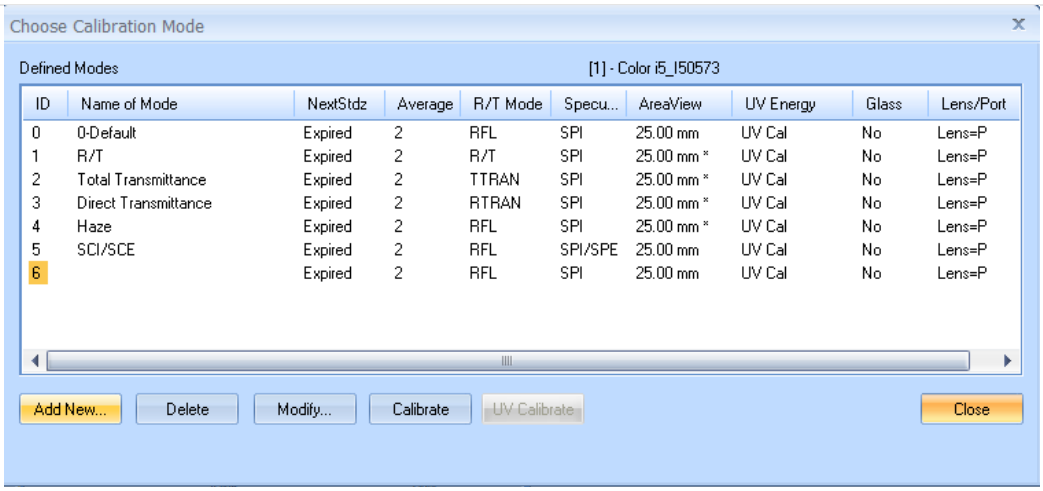
Trial Name	Meas	DL*	Da*	Db*	DC*	DH*	DEcmc
Low Gloss	%R LAV SCE UVC Color i5	19,34 L	0,13 R	0,42 Y	-0,41 D	0,16 R	18,93

This will display the results for SCE condition.

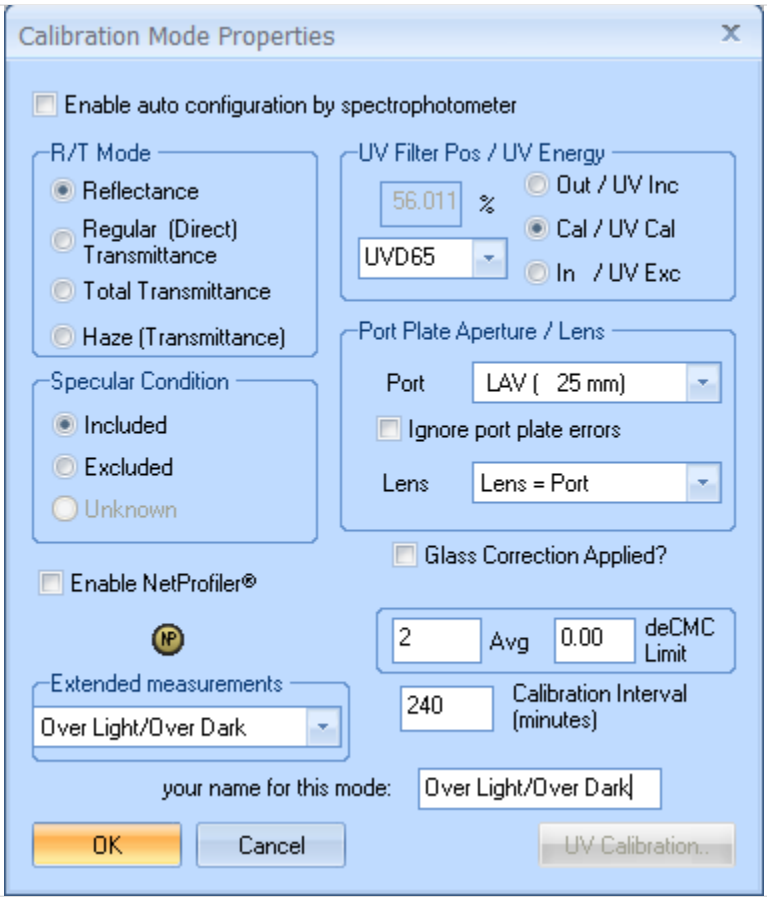
How to measure the contrast ratio from OL/OD measurements?

Within iQC the contrast ratio can be calculated from over light and over dark measurements

- First step - prepare the calibration mode for the OverLight and OverDark measurements



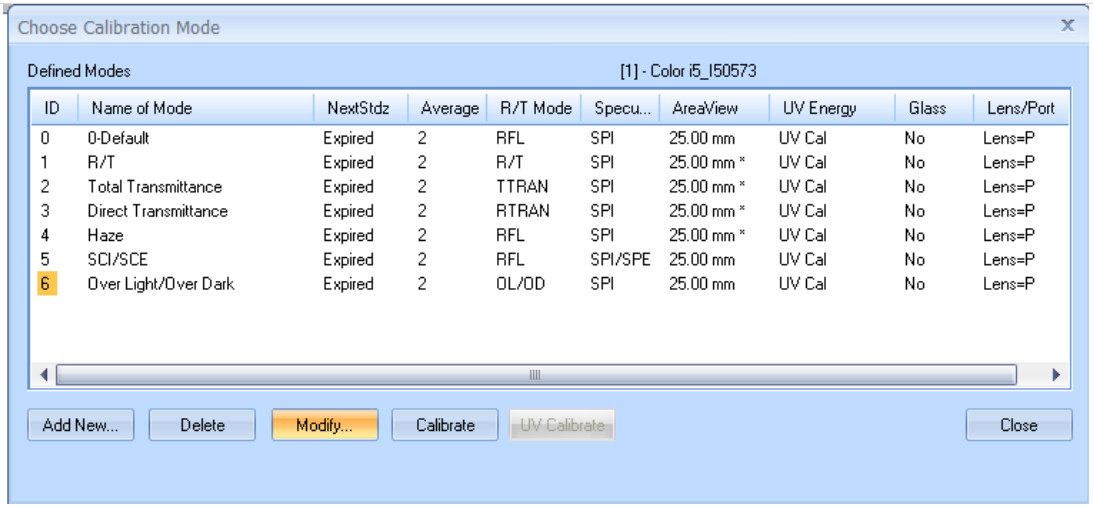
Select a calibration mode for OL/OD measurement. If it is not yet available to you have to [Add New] one.



Select the following settings:
Remove the check next to "Enable auto configuration by spectrophotometer"
R/T Mode = Reflectance
Specular Condition = Included
UV Filer Pos/UV Energy = UVD65/Cal/UVCal
Extended Measurements = OverLight/Over Dark

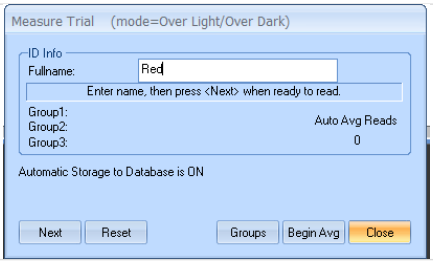
Enter a name for this calibration mode

Press [OK] to leave the Calibration Mode Properties Window.

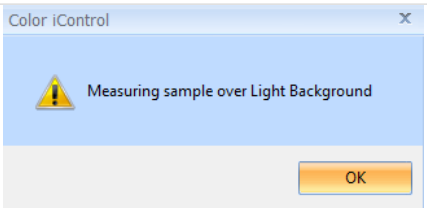


Select mode 6 and calibrate it with the normal calibration procedure.

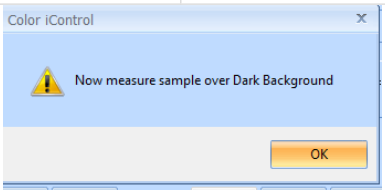
Click [Close] to leave the box



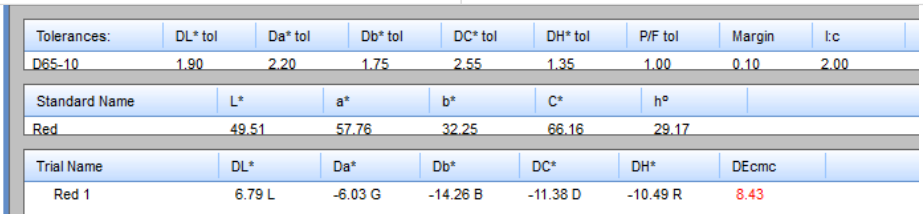
The measurement windows will show in the header which measurement mode is used



Within the measurement sequence you will be asked to present the samle over white

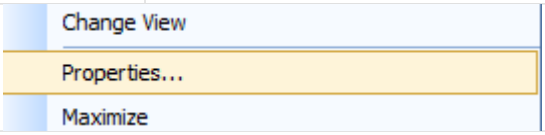


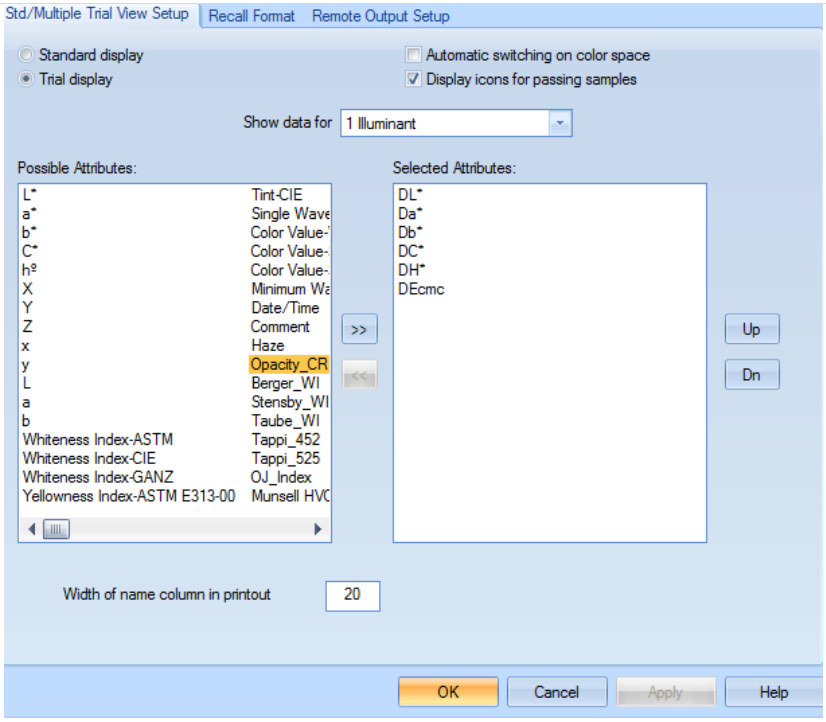
and over black background



The data for the over light measurements will be shown in the multi-trial data view.
To provide the Opacity_CR information the opacity information has been added to the view.

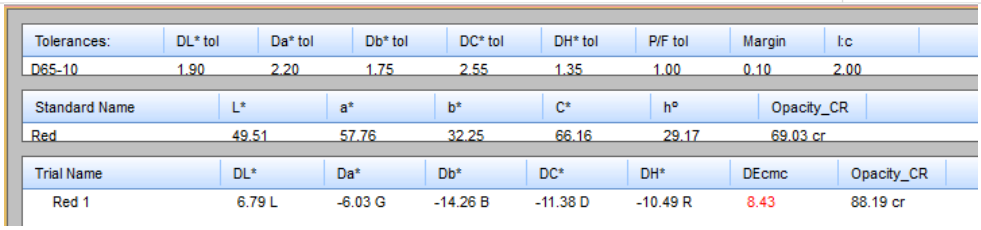
In order to change the information in the multi-trial data view – do a right mouse click into the multitrial data view and select the properties… from the menu





In the Properties Windows for the Multi-trial setup select Opacity_CR and press the key facing to the right.

This should be done for standard and trial

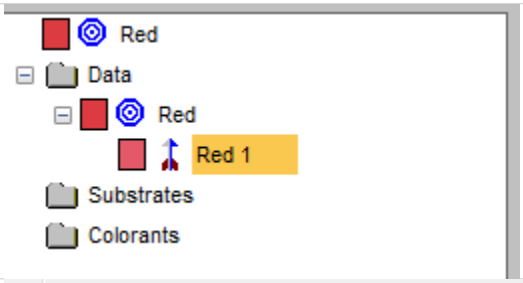


Tolerances:	DL* tol	Da* tol	Db* tol	DC* tol	DH* tol	P/F tol	Margin	l:c
D65-10	1.90	2.20	1.75	2.55	1.35	1.00	0.10	2.00

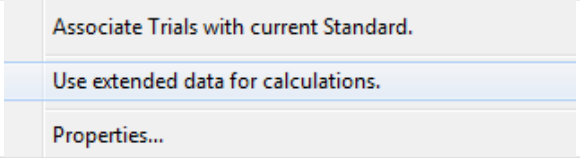
Standard Name	L*	a*	b*	C*	h°	Opacity_CR
Red	49.51	57.76	32.25	66.16	29.17	69.03 cr

Trial Name	DL*	Da*	Db*	DC*	DH*	DEcmc	Opacity_CR
Red 1	6.79 L	-6.03 G	-14.26 B	-11.38 D	-10.49 R	8.43	88.19 cr

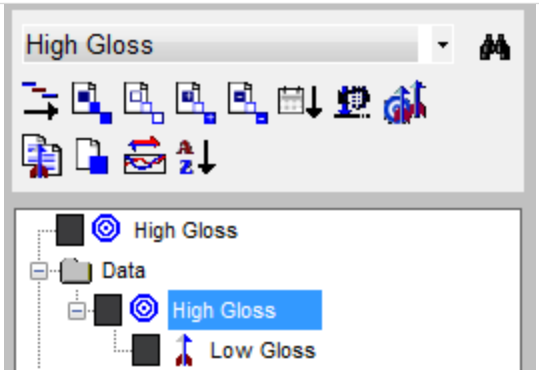
Now the data mutitrial data view will include the Opacity_CR information along with with the Over Light data. If the Over Dark data are desired the output must be changed



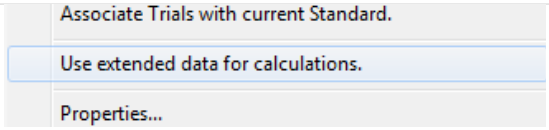
Mark the standard or sample in the tree view and press the right mouse key.



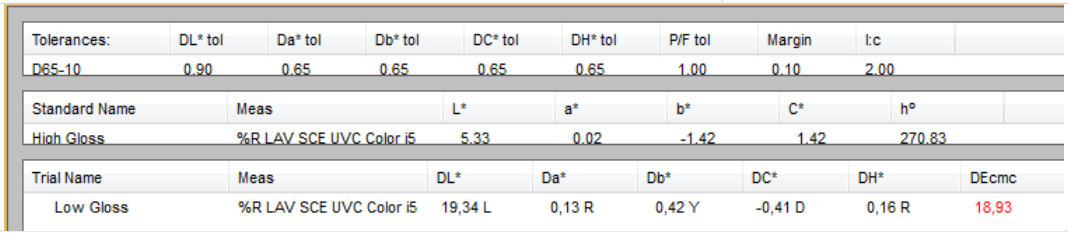
Select to use the extended data for calculation



In order to change the display of data to SCE mode, do a right mouse key click into the data section of tree view.



Select “Use extended data for calculation”



Tolerances:	DL* tol	Da* tol	Db* tol	DC* tol	DH* tol	P/F tol	Margin	I:c
D65-10	0.90	0.65	0.65	0.65	0.65	1.00	0.10	2.00

Standard Name	Meas	L*	a*	b*	C*	h°
High Gloss	%R LAV SCE UVC Color i5	5.33	0.02	-1.42	1.42	270.83

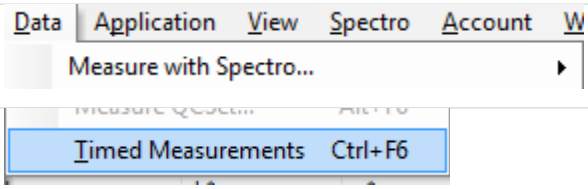
Trial Name	Meas	DL*	Da*	Db*	DC*	DH*	DEcmc
Low Gloss	%R LAV SCE UVC Color i5	19,34 L	0,13 R	0,42 Y	-0,41 D	0,16 R	18,93

This will display the results for SCE condition.

How can I start a timed measurement to take automatic readings?

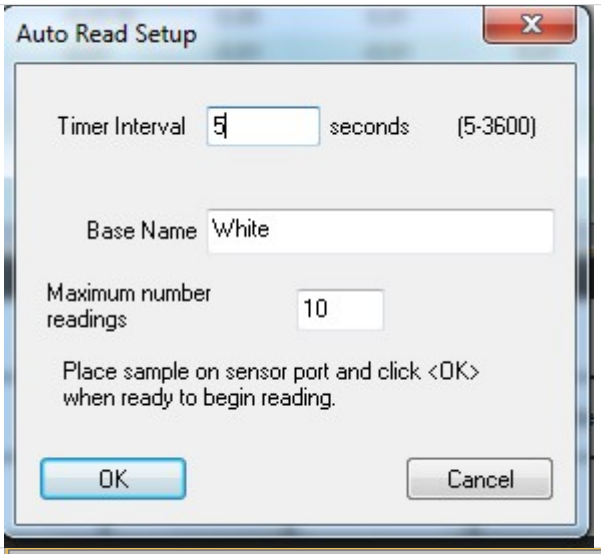
For some application, there is need to measure the changes of samples with the time. Also, when long time performance tests of the instruments have to be done, an automatic measurement is very useful. There is a function build into the program which allows to perform these measurements automatically

- Step 1 – open a new job
- Step 2 - Select the desired calibration mode for the spectro
- Step 3 – Calibrate if required
- Step 4 - measure the standard – if trial measurements in relation to a standard need to be made
- Step 5 – Setup the timed measurement in the following way



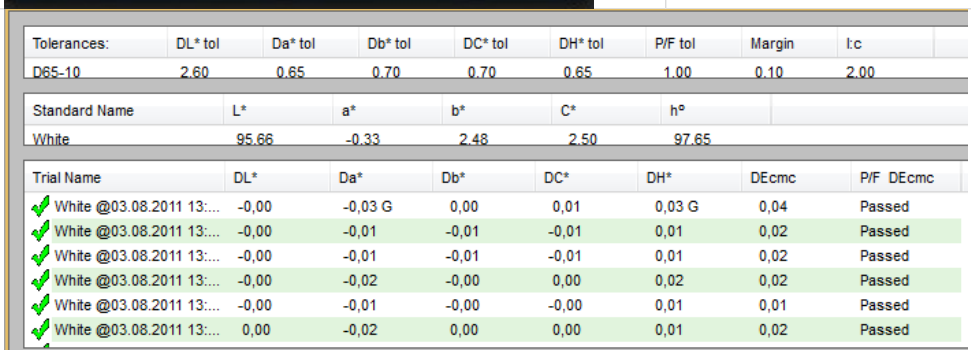
From the main menu – select Data - there you select Measure with your Spectro

Next you select Timed Measurements (alternately you can do the same with [CTRL] + [F6]



Within the Auto Read Setup – you can enter

- the timer interval
- Sample Name
- Maximum number of readings to be done



Tolerances:	DL* tol	Da* tol	Db* tol	DC* tol	DH* tol	P/F tol	Margin	l:c
D65-10	2.60	0.65	0.70	0.70	0.65	1.00	0.10	2.00

Standard Name	L*	a*	b*	C*	h°
White	95.66	-0.33	2.48	2.50	97.65

Trial Name	DL*	Da*	Db*	DC*	DH*	DEcmc	P/F DEcmc
White @03.08.2011 13:...	-0,00	-0,03 G	0,00	0,01	0,03 G	0,04	Passed
White @03.08.2011 13:...	-0,00	-0,01	-0,01	-0,01	0,01	0,02	Passed
White @03.08.2011 13:...	-0,00	-0,01	-0,01	-0,01	0,01	0,02	Passed
White @03.08.2011 13:...	-0,00	-0,02	-0,00	0,00	0,02	0,02	Passed
White @03.08.2011 13:...	-0,00	-0,01	-0,00	-0,00	0,01	0,01	Passed
White @03.08.2011 13:...	0,00	-0,02	0,00	0,00	0,01	0,02	Passed

As soon as you press [OK] the measurement starts

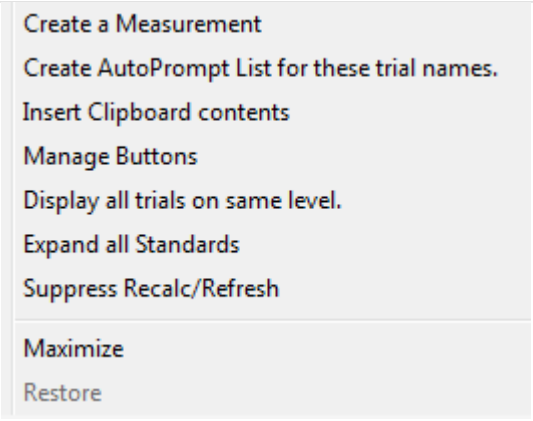
Make sure, that you have placed the sample before

Attention: To avoid, that the time frame for the total number of measurements exceeds the calibration time – either adapt the timer there or enter a 0 to exclude the calibration timer control.

How can I enter a new standard with color metric data only?

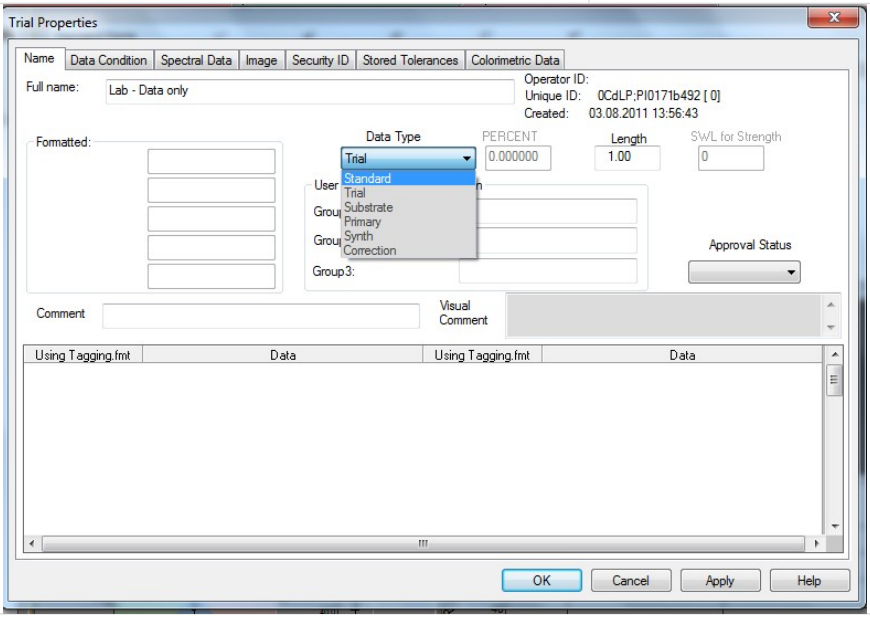
Sometimes customers provide standard specification in terms of L*a*b* - data only. The question is – how can these be entered into the system?

- Step 1 – Choose the job – in which you want to store the new standard
- Step 2 – Do a right mouse click into the Tree-View Data section (alternately press the [insert] button on your keyboard



The right mouse menu will provide you a list of options

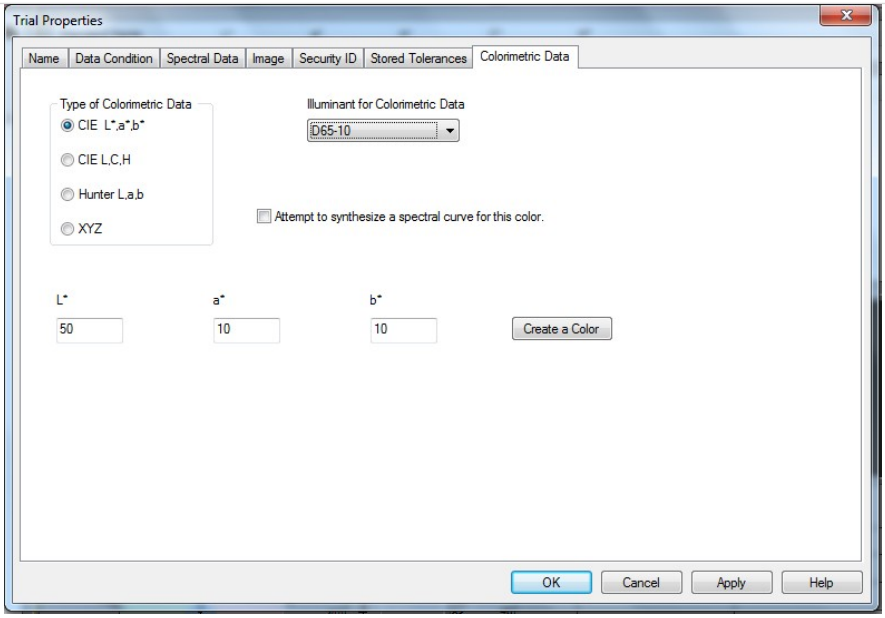
Select the Create a Measurement



- Step 3

This opens the Trial Properties Windows

On the Tab Name – you can enter the name of the sample for which you want to enter the lab-data and the Data Type . If you want to enter Standard Data select Standard



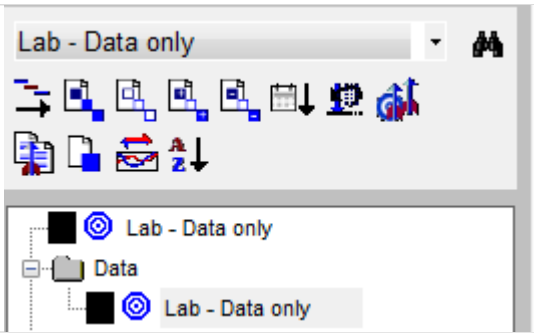
Step 4

Select the type of color metric data

Select the illuminant observer condition of the color metric data

Enter the color metric data

Press [Apply]
Press [OK]



This standard is now available for comparison like any other standard

Attention – It always has to be kept in mind that this standard is only valid for those data entered.

Transmission Measurement

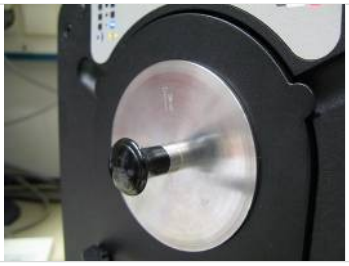
The color or the transmission spectrum of colored liquids or colored solid materials such as foils can be measured with the Color_i7 or Color_i5.
Principally the user can measure the direct (for clear samples) or the total (for turbid sample) Transmission. Measuring the direct transmission only the direct light beam transmitted by the sample will be considered. Since there is lot of scattering in turbid samples the recommendation is to collect all light transmitted through the sample.

How to prepare for Transmission measurement and how to calibrate

White Standard

The sphere has to be closed with the Calibration White Standard (i5) or with TX-cover (i7).

- The Tx-Cover (see picture) is made from steel and will fixed to the front through the magnetic behavior. It is needed to complete the Ulbricht sphere and it needs to be kept all the time in front of the sphere..
- If the transmission white standard is used this should stay all the time in the position.



Tx-Cover with integrated white (i7)

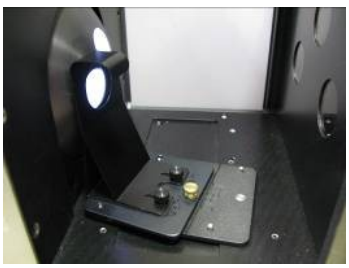
Transmission White Standard for Calibration

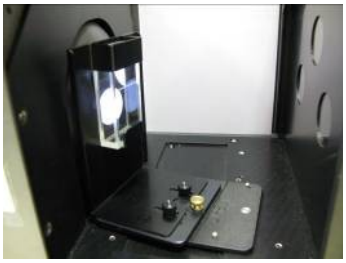
Sample Holder

- The thin-film-sample holder or the liquid cell holder can be mounted in the transmission part of the instrument, prior to the calibration. This is decision of the user.
- In case of measurement of liquids, we would recommend to include the empty and cleaned cuvette (quartz) into the calibration process.

For Total Transmittance the measurement will be done at the sphere

Thin-film sample holder

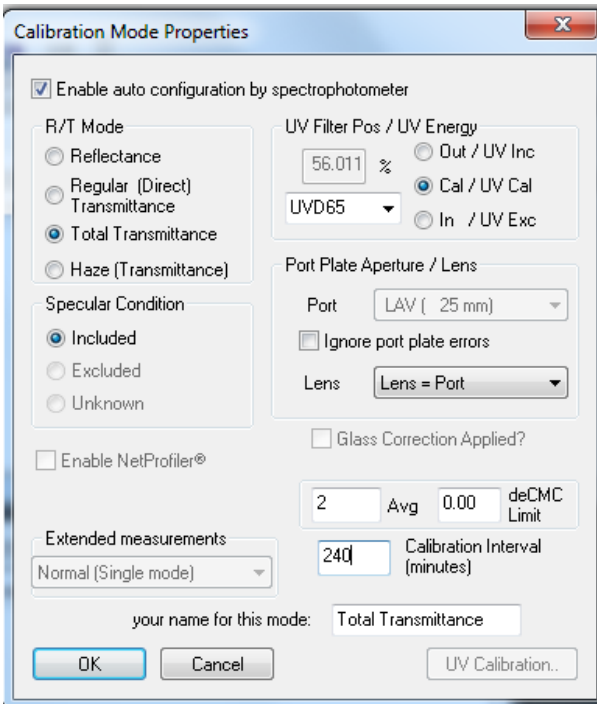


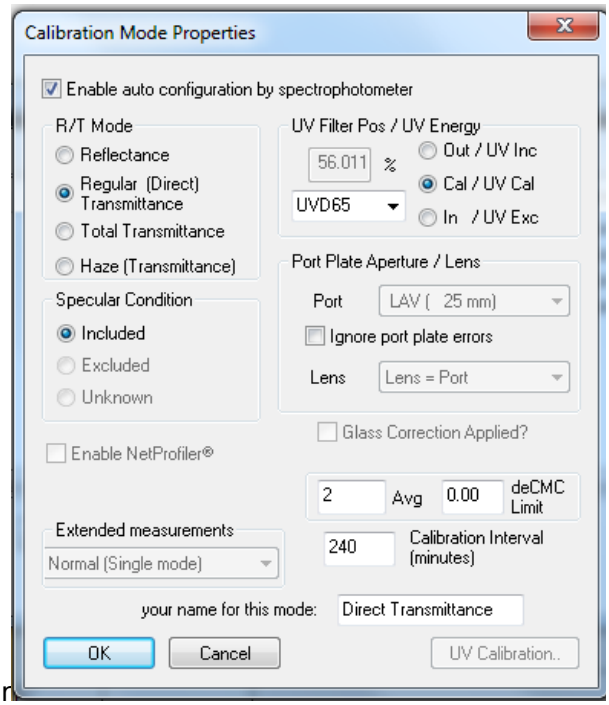


Cuvette holder for measurement of liquids on the base plane.

Calibration Mode

In order to do any measurement in iQC a proper measurement mode has to be selected. If it is not yet available it has to be created.





ID	Name of Mode	NextStdz	Average	R/T Mode	Specular	AreaView	UV Energy	Glass	Lens/Port
0	0-Default	Expired	2	RFL	SPI	25.00 mm	UV Cal	No	Lens=P
1	R/T	Expired	2	R/T	SPI	10.00 mm *	UV Cal	No	Lens=P
2	Total Transmittance	Expired	2	TTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
3	Direct Transmittance	Expired	2	RTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
4	(4) Haze	Expired	2	HAZE	SPI	25.00 mm	UV Cal	No	Lens=P

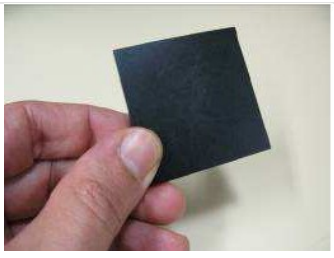
Calibration

Once all preparation have been made and the desired calibration mode has to be selected and the calibration has to be started. (press F4 or the proper icon)

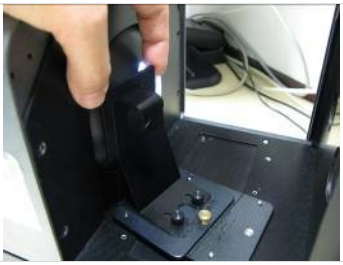
- The calibration will be guided by the Color iQC.
  - Step1 – White calibration

    In the first step the white calibration has to be made. Either the TX sphere cover with integrated white or the White Transmission Standard has to be placed in front of the instrument. It has to be kept all the time in this position.
  - Step 2 – Black calibrations

    In the second step the black standard (black plastic chip) – has to be placed next to the sphere opening. The easiest will be to fix the sample between thin-film-holder and the sphere. The sphere opening should be completely covered.



A black standard (is provided as part of the Transmission Package) will be placed in the cell holder

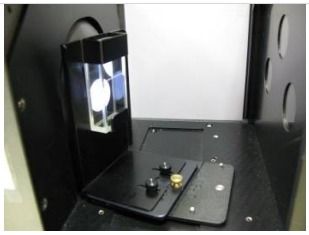


How to do Color Measurement in Transmission mode – Total Transmittance

- To do a color measurement in transmission mode the following a job has to be opened/created
- The correct type of calibration mode for the transmission measurement has to be selected

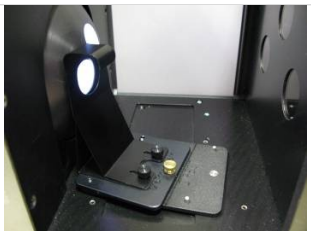
ID	Name of Mode	NextStdz	Average	R/T Mode	Specular	AreaView	UV Energy	Glass	Lens/Port
0	0-Default	Expired	2	RFL	SPI	25.00 mm	UV Cal	No	Lens=P
1	R/T	Expired	2	R/T	SPI	10.00 mm *	UV Cal	No	Lens=P
2	Total Transmittance	Expired	2	TTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
3	Direct Transmittance	Expired	2	RTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
4	(4) Haze	Expired	2	HAZE	SPI	25.00 mm	UV Cal	No	Lens=P

- If calibration expired – calibration has to be made



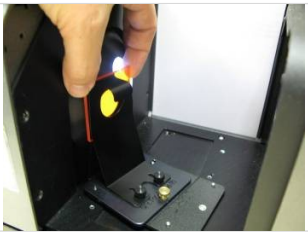
Transparent liquid samples

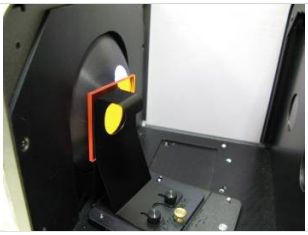
- For liquid samples the cell holder has to be mounted to the base panel. This will fix direct into the wholes on the ground of the instrument. The cell holder should be placed very close to the sphere whole.
- The liquid sample will be entered into the cuvette and this will be placed into the cell holder.



Transparent plastic chips

- The thin-foils-sample-holder will be mounted to the base panel. This will fix directly into the wholes on the ground of the instrument. The sample holder should be placed very close to the sphere whole.
- The liquid sample will be entered into the sample holder.





- Once the sample has been presented correctly the measurement can be activated (F6) or  within the iQC program.
- The iQC program works for transmission samples in the same way as it would with opaque samples – standards and trials can be measured, evaluations can be done afterwards and reports can be generated

How to do Color Measurement in Transmission mode – Direct Transmittance

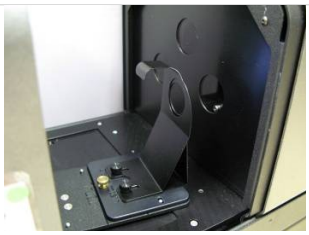
- To do a color measurement in transmission mode the following a job has to be opened/created
- The correct type of calibration mode for the transmission measurement has to be selected

ID	Name of Mode	NextStdz	Average	R/T Mode	Specular	AreaView	UV Energy	Glass	Lens/Port
0	0-Default	Expired	2	RFL	SPI	25.00 mm	UV Cal	No	Lens=P
1	R/T	Expired	2	R/T	SPI	10.00 mm *	UV Cal	No	Lens=P
2	Total Transmittance	Expired	2	TTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
3	Direct Transmittance	Expired	2	RTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
4	(4) Haze	Expired	2	HAZE	SPI	25.00 mm	UV Cal	No	Lens=P

- If calibration expired – calibration has to be made

Transparent plastic chips

- The thin-foils-sample-holder will be mounted to the base panel. The base panel will fix directly into the wholes on the ground of the instrument. The sample holder should be placed very close to the lens.
- The plastic chip sample will be entered into the thin-foils-sample-holder



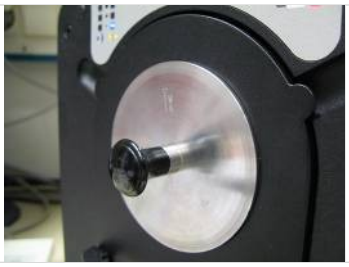
- Once the sample has been presented correctly the measurement can be activated (F6)  within the iQC program.
- The iQC program works for transmission samples in the same way as it would with opaque samples – standards and trials can be measured, evaluations can be done afterwards and reports can be generated

Color Measurement in Transmission mode – Haze

With the i5 or i7 instrument the haze of samples can be measured. To measure haze two single measurements have to be made one with a white calibration standard in place and one with a black (Black Standard) in place. Only those samples with a good dispersion and good resistance of sedimentation should be measured.

How to prepare for Haze Calibration?

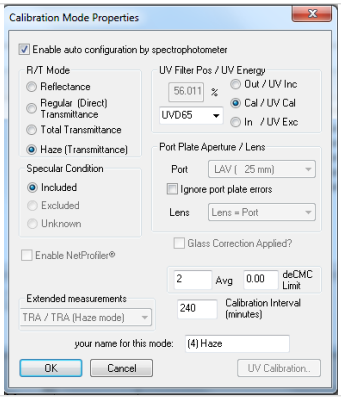
- First of all the sphere has to be closed with the Calibration White Standard or with TX-cover.
  - The Tx-Cover (see picture) is made from steel and will fixed to the front through the magnetic behavior. It is needed to complete the Ulbricht sphere.
  - If the other option is to use the white standard



Tx-Cover with integrated white

Transmission White Standard for Calibration

  - The thin-film-sample holder or the liquid cell holder can be mounted in the transmission part of the instrument, prior to the calibration. This is decision of the user.
  - In case of measurement of liquids, we would recommend to include the empty and cleaned cuvette (quartz) into the calibration process.



ID	Name of Mode	NextStdz	Average	R/T Mode	Specular	AreaView	UV Energy	Glass	Lens/Port
0	0-Default	Expired	2	RFL	SPI	25.00 mm	UV Cal	No	Lens=P
1	R/T	Expired	2	R/T	SPI	10.00 mm *	UV Cal	No	Lens=P
2	Total Transmittance	Expired	2	TTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
3	Direct Transmittance	Expired	2	RTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
4	(4) Haze	Expired	2	HAZE	SPI	25.00 mm *	UV Cal	No	Lens=P

- Once the preparation has been made the desired calibration mode has to be selected and the calibration has to be started. (press F4 or the proper icon)
- The calibration will be guided by the Color iQC.
  - Step1 – White calibration

  In the first step the white calibration has to be made. Either the TX sphere cover with integrated white or the white transmission standard has to be placed in front of the instrument.
  - Step 2 – Black calibration with the black trap

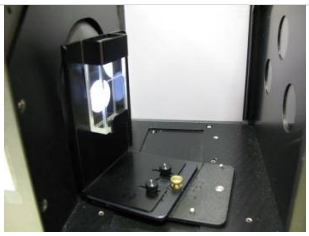
  In the second step the black trap will be requested. Place it in front of the spectro and do a measurement.

How to do Haze Measurement?

- To do a haze measurement a job has to be opened/created
- The correct type of calibration mode for the transmission measurement has to be selected

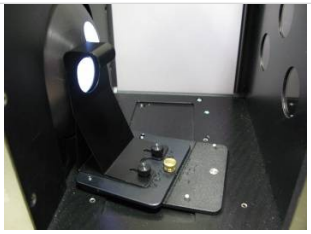
ID	Name of Mode	NextStdz	Average	R/T Mode	Specular	AreaView	UV Energy	Glass	Lens/Port
0	0-Default	Expired	2	RFL	SPI	25.00 mm	UV Cal	No	Lens=P
1	R/T	Expired	2	R/T	SPI	10.00 mm *	UV Cal	No	Lens=P
2	Total Transmittance	Expired	2	TTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
3	Direct Transmittance	Expired	2	RTRAN	SPI	25.00 mm *	UV Cal	No	Lens=P
4	(4) Haze	Expired	2	HAZE	SPI	25.00 mm *	UV Cal	No	Lens=P

- If calibration expired – calibration has to be made



Liquid samples

- For liquid samples the cell holder has to be mounted to the base panel. This will fix direct into the wholes on the ground of the instrument. The cell holder should be placed very close to the sphere whole.
- The liquid sample will be entered into the cuvette and this will be placed into the cell holder.
- The measurement will be done in two steps
    - over the white transmission standard
    - over the black trap
- Once the measurement has been done evaluations can be done and reports can be generated

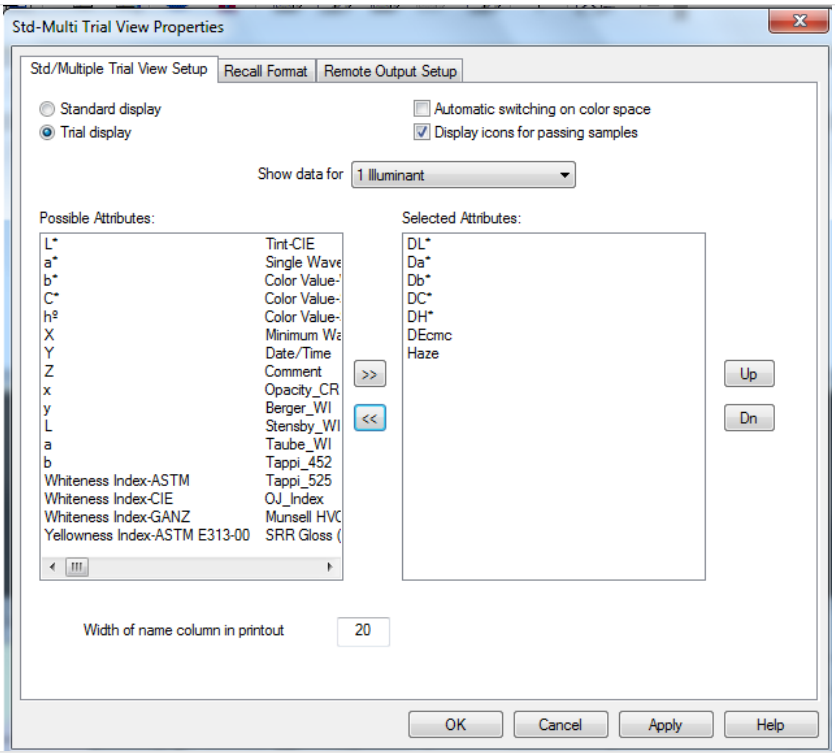


Plastic chips and foils

- The thin-foils-sample-holder will be mounted to the base panel. This will fix directly into the wholes on the ground of the instrument. The sample holder should be placed very close to the sphere whole.
- The liquid sample will be entered into the sample holder.
- The measurement will be done in two steps
    - over the white transmission standard
    - over the black trap

Once the measurement has been done evaluations can be done and reports can be generated

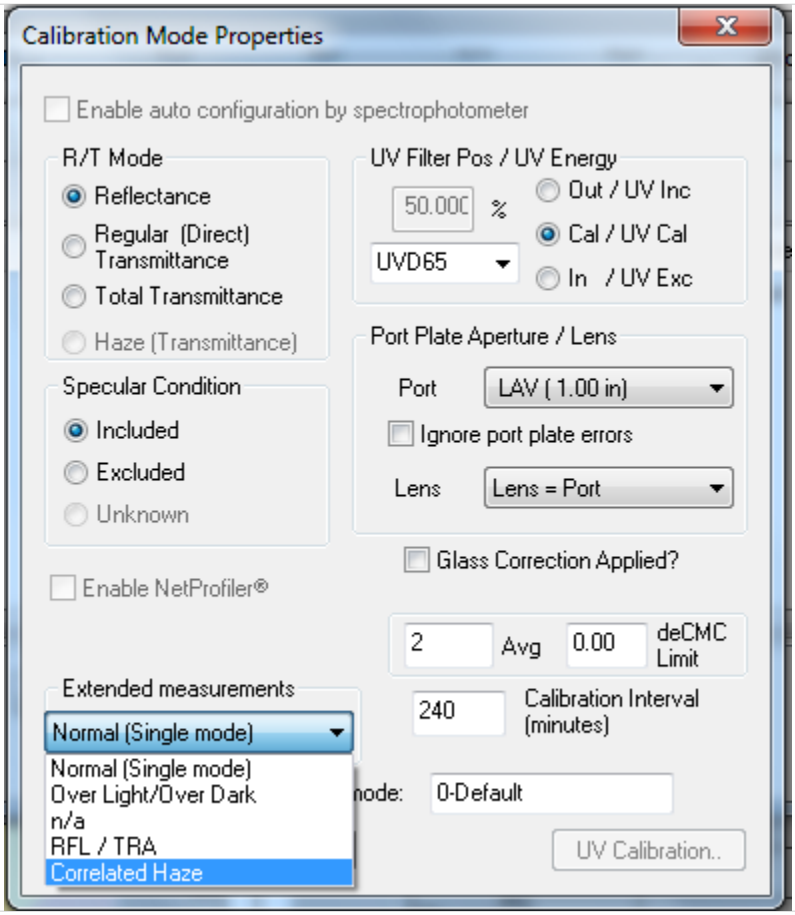
How to set up the Multi Trial view to see the Haze Data?



In order to show the measured haze data the haze information has to be added to the multi trial view.
You can do this by clicking into the multi trial and press the right mouse key. Then select properties and the Multi Trial View Windows will open.
Select the Haze information in the box of possible attributes and press the double arrow key facing to the right. This will move the haze to the right box.

How to measure correlated Haze on a 7000A instrument

Also with the 7000A instrument the haze of samples can be measured. However there is the little difference to the above information on the i5 and i7 instrument. Due to the fact, that the 7000A instrument doesn´t require a black calibration in the transmission mode, the Haze function cannot be done in this mode. For the 7000A instrument you will have to use the correlated haze.

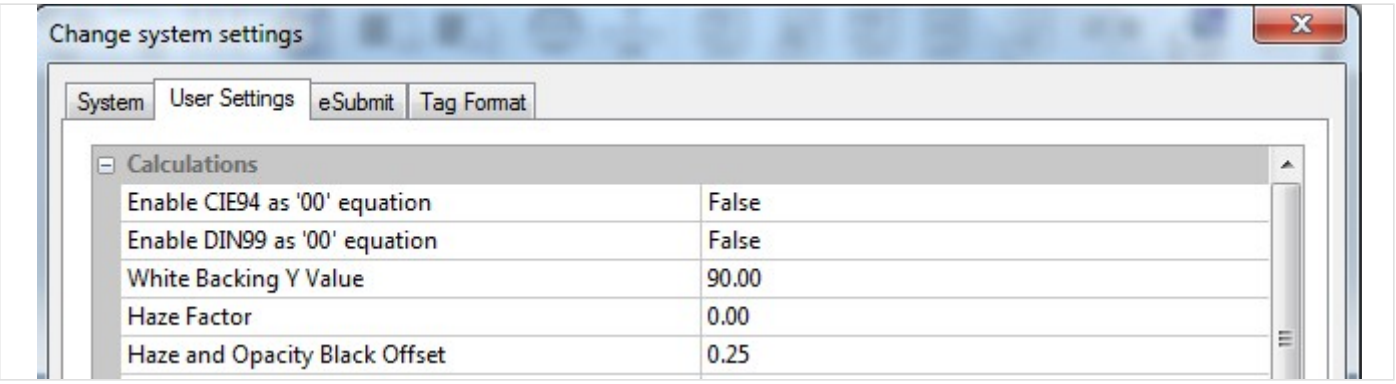


On the 7000A instrument a correlated haze measurement can be done, when in the R/T Mode with the activated Reflectance the option correlated haze is selected

Calibrate the instrument in the Reflectance Mode.
Place the samples within transmission chamber – place them close to the sphere and follow the instruction to place the black and white standard for the measurement.

Haze Correlation

Even a sphere based spectrophotometer can be used to measure a correlated Haze – it is not really build up like a Haze Meter. Therefore it might well be, that the results achieved by the sphere based spectrophotometer do not agree to those of the Haze meter. If a series of samples with a haze value available – the results from the spectrophotometer might be adjustable to the target results. Within the user settings (F2 if no job is loaded) of the iQC program – there are two sets data, which can be used to influence the results.
The Haze factor is a linear factor (default value = 0)
The Haze and Opacity Black Offset factor is an offset from 0.



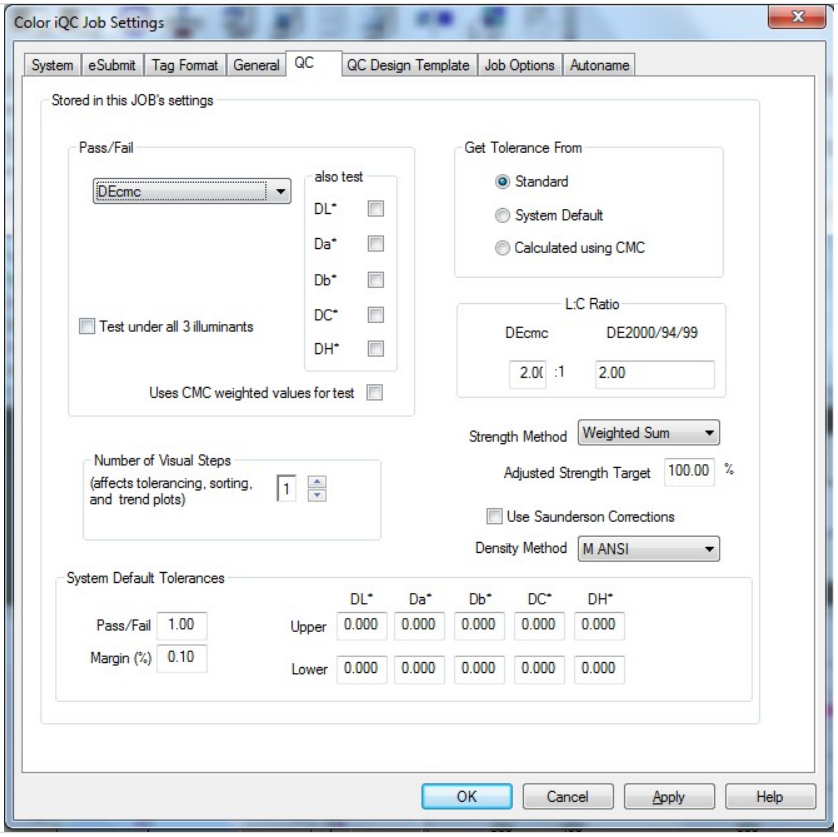
Tolerances

Program workflow for tolerance settings

Color iQC and Color iMatch supports 3 different types of general tolerance handling.

- Individual standard settings
- The same tolerances for all standards
- Automatic CMC tolerancing

This general tolerance setting is defined in the QC-Setting

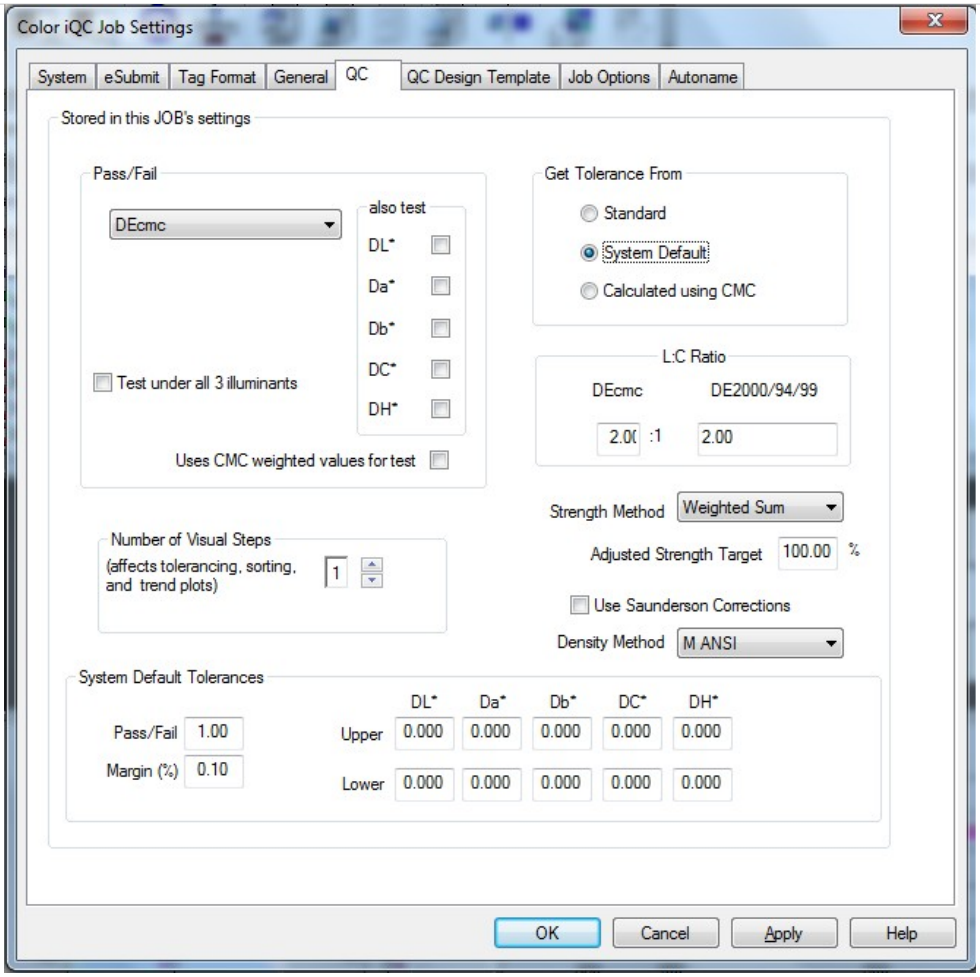


In the Color iQC Job settings - on the tab QC - the user can decide which type of tolerance handling he wants to use.

In case the option "Get Tolerance From" Standard is activated - the program workflow will check first at the selected standard, whether individual tolerances are stored along with the standard. If this is not the case the program workflow will use the system default settings as defined in this window.
In case the system default is activated the program logic will use the tolerance settings as defined in this screen

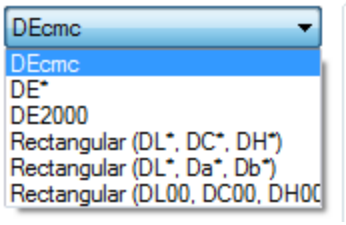
When and how to use system tolerances?

For companies, which do not yet have any experience with individual tolerances and do not have specific customers with individual tolerances for individual standards the use of system tolerance is very often used. Only at one location 1 tolerance setting has to be defined and this will work for all standards



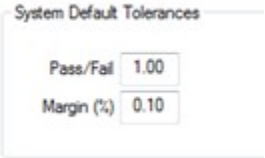
In order to set the program workflow in such way, that no individual tolerances should be considered the “Get Tolerance From System Default” has to be activated.

In this case the tolerance data as defined in this screen will be used.

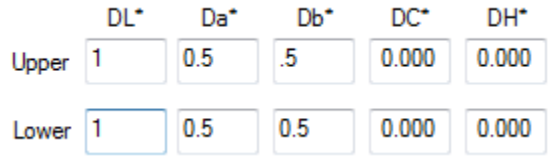


There is a choice of 6 different tolerance systems.
This includes

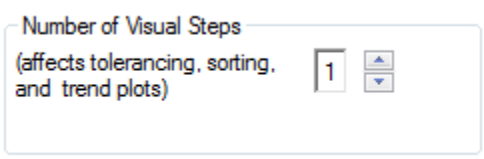
- DE*
- DEcmc
- DE2000
- Rectangular (DL*, DC*, DH*)
- Rectangular (DL*,Da*,Db*)
- Rectangular (DL00, DC00, DH00)



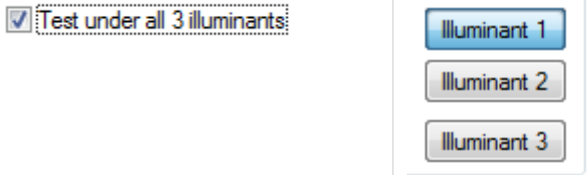
In the System Default Tolerances the Pass/Fail-Value for the selected tolerance system is defined with a margin value for warning information.



If either the Rectangular (DL*,Da*,Db*) system or the Rectangular (DL*, DC*, DH*) is selected individual tolerances can be defined for each parameter.



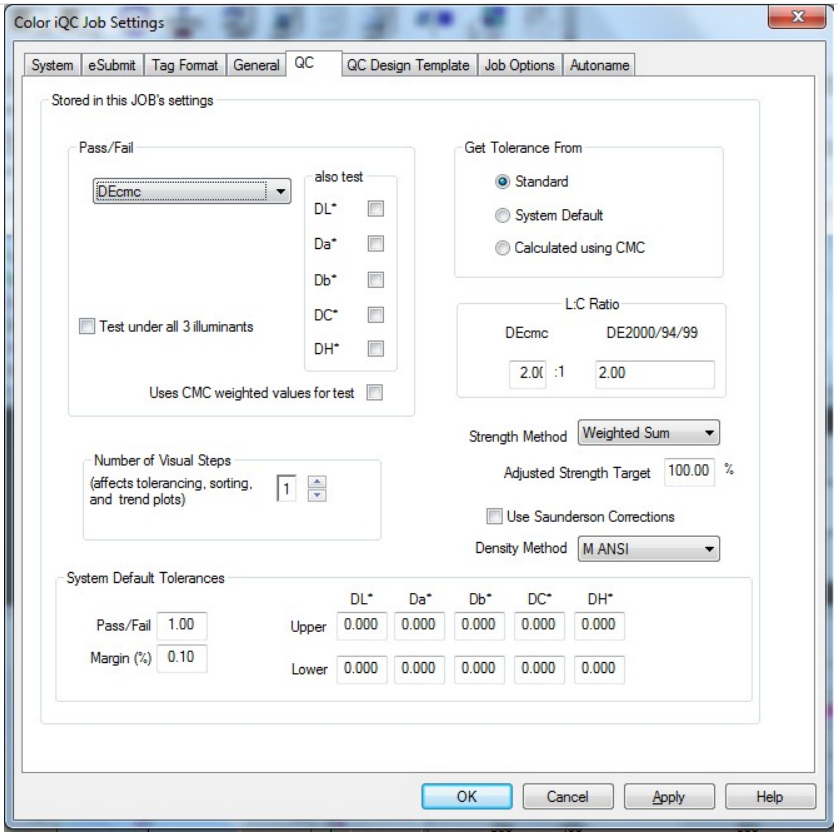
Attention: For the above tolerance setting with de-central tolerances data is only available – if the number of visual sorting steps has been set to 1.



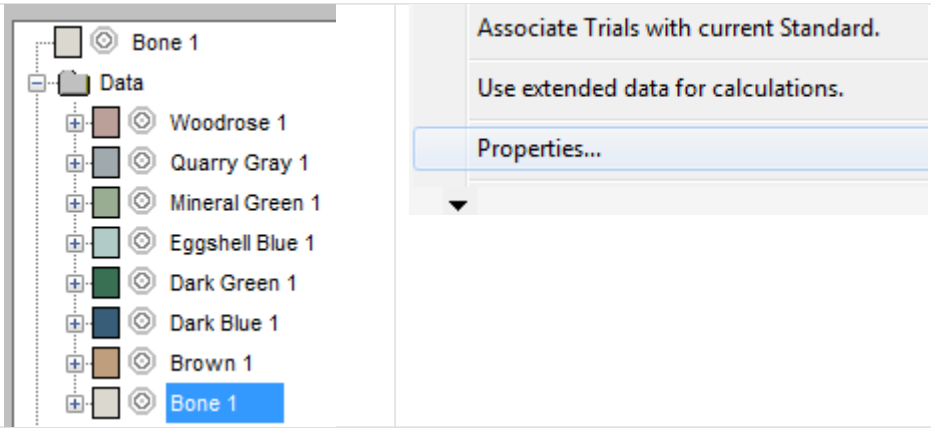
If the function Test under all 3 illuminants (as defined on the Color iQC-Setting Tab General) – for each of the 3 illuminants tolerances can be provided.

When and how to use individual tolerances for each standard?

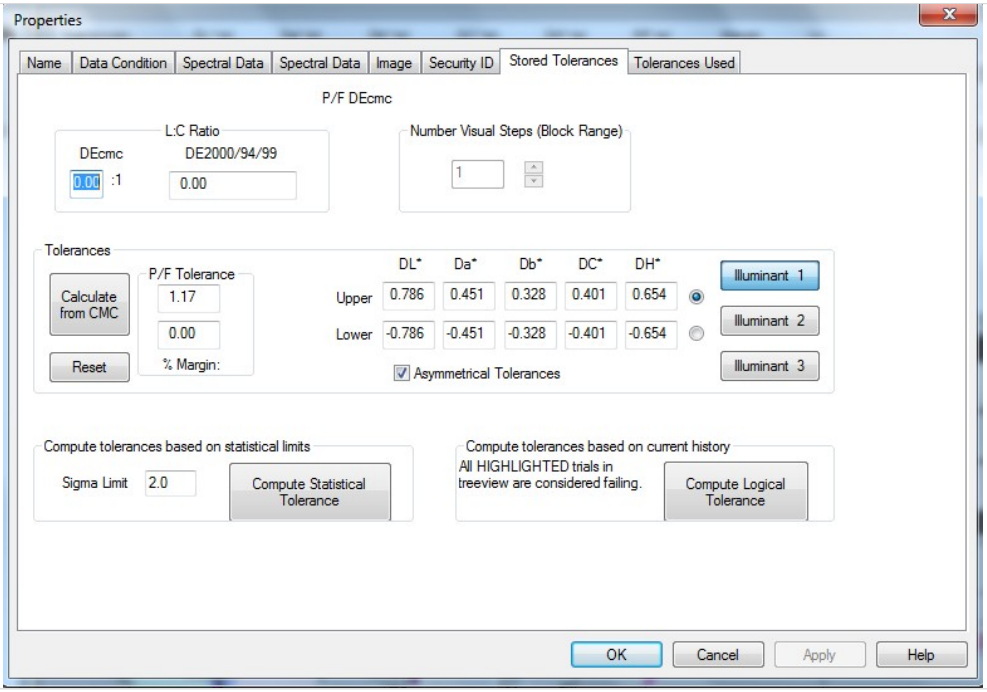
The use of individual tolerances for each standard is recommended, if you are working with customers which have individual tolerances for each standard. IQC provides a lot of flexibility to handle such cases. For each standard individual tolerance systems (DE*, DE_{CMC}, DE_{00}, …) as well as individual tolerance values can be used.



In order to allow individual tolerances for each standard, the selection "Get Tolerance From" Standard has to be activated. In this case the program workflow will check first at the selected standard, whether individual tolerances are stored along with the standard. If this is not the case the program workflow will use the system default settings as defined in this window.
In case the system default is activated the program logic will use the tolerance settings as defined in this screen.



In order to provide individual tolerances to a standard the standard will be have to be marked in the tree view windows and the right mouse key has to be used.
From the option menu the “Properties” function option has to be selected.



In the properties for the selected standard on the tab “Stored Standard” the tolerances for the standard can be set. The choice includes

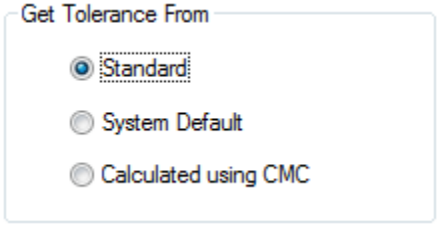
- DE_{CMC}
- Rectangular DL*Da*Db*DC*DH*
- DE2000/94/99

Individual tolerances’ for different illuminants can be defined.

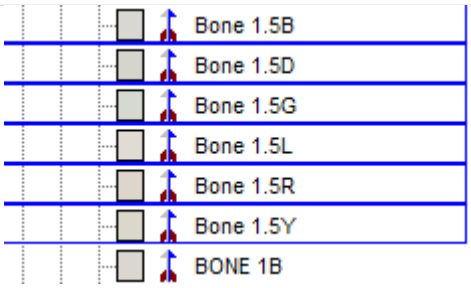
Special functions can be used to calculate tolerances based on existing trail data.

LC-Ratio	If a different ratio of L:C than defined in the system setting should be used it can be set at this point
Number of steps for sorting	In this box the number of sorting steps within the 555 sorting can be defined here
Tolerances	Within this section the tolerances can be defined
Calculate from CMC	The Tolerances DL*, Da* … as shown can be calculated from the manual entered P/F-Tolerance value

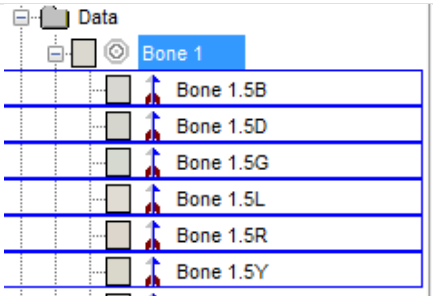
How to calculate individual standard tolerances based on statistical data?

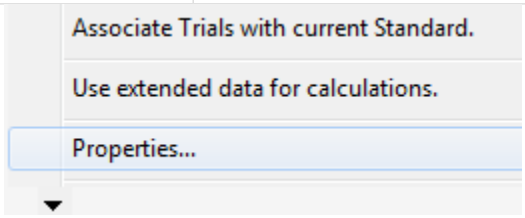


In order to allow use individual tolerances for each standard, the selection "Get Tolerance From" Standard has to be activated. In this case the program workflow will check first at the selected standard, whether individual tolerances are stored along with the standard. If this is not the case the program workflow will use the system default settings as defined in this window.
In case the system default is activated the program logic will use the tolerance settings as defined in this screen.

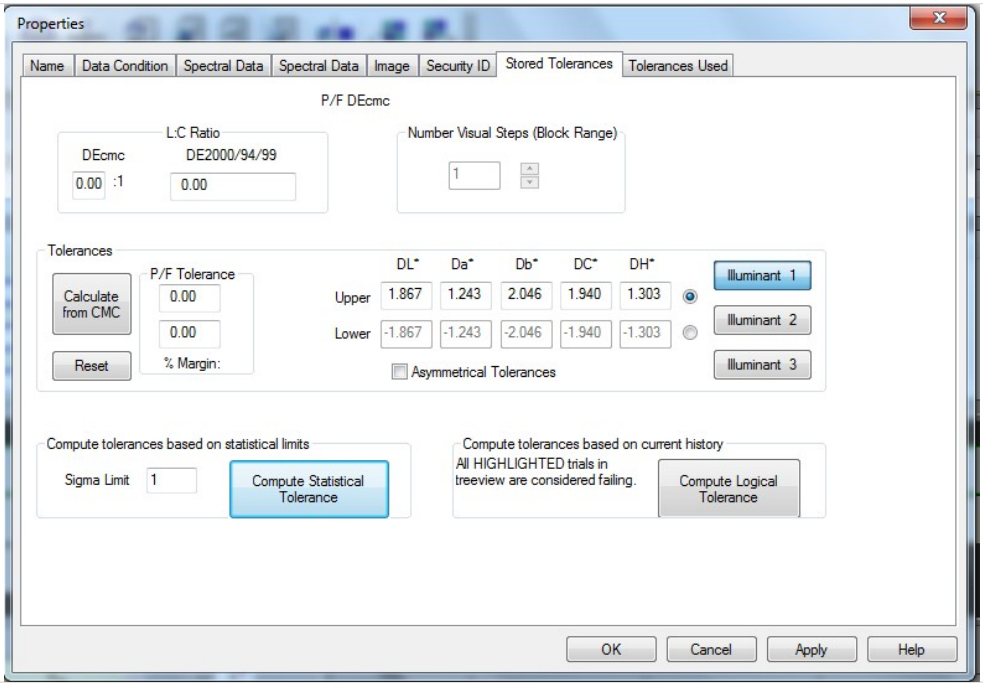


Minimum 10 acceptable trials have to be associated with the standard. There is no difference whether the sample have been marked/selected or not marked/selected.



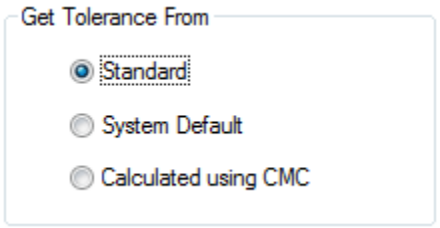


In order to provide individual tolerances to a standard the standard will be have to be marked in the tree view windows and the right mouse key has to be used.
From the option menu the “Properties” function option has to be selected.

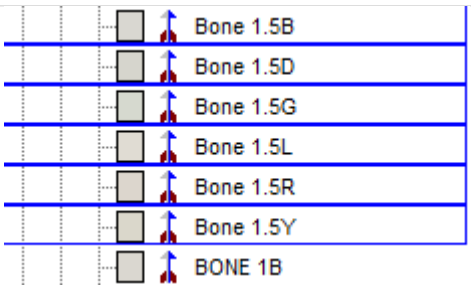


Within the properties of the standard the Tab “Standard Tolerances” has to be selected. Once a sigma limit has been entered the button “Compute Statistical Tolerances” has to be clicked. A set of DL*, Da*, Db*, DC* and DH* will be provided.

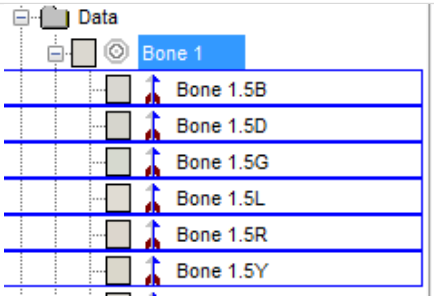
How to calculate logical CMC tolerances for a standard?

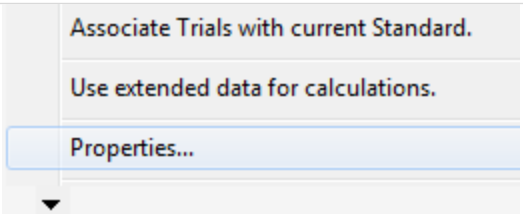


In order to allow using individual tolerances for each standard, the selection "Get Tolerance From" Standard has to be activated. In this case the program workflow will check first at the selected standard, whether individual tolerances are stored along with the standard. If this is not the case the program workflow will use the system default settings as defined in this window.
In case the system default is activated the program logic will use the tolerance settings as defined in this screen.

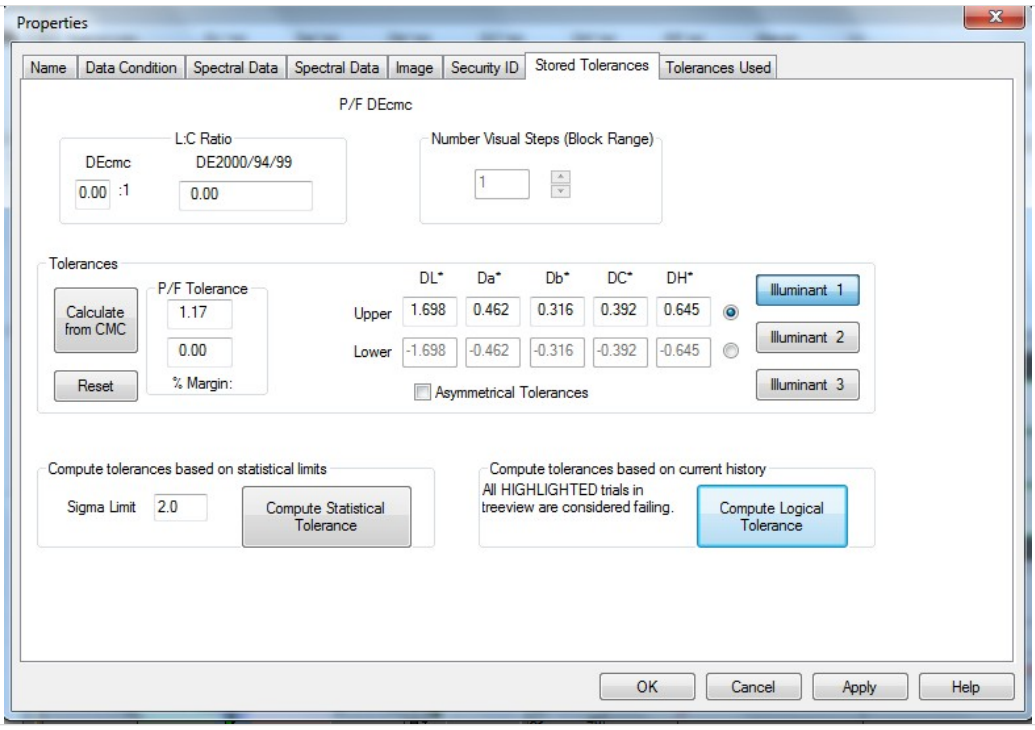


A minimum of 10 samples/trials and at least one selected (fail) in order to compute logical tolerances for a standard. The more samples the better the tolerance generation.





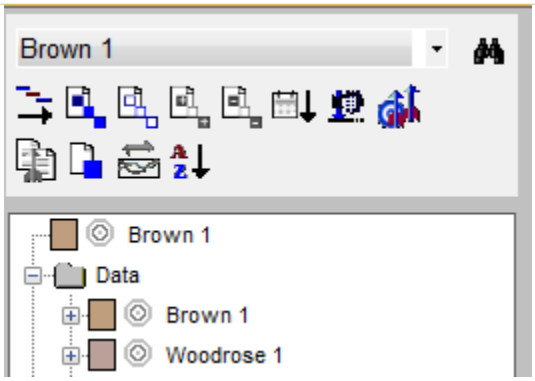
In order to provide individual tolerances to a standard the standard will be have to be marked in the tree view windows and the right mouse key has to be used.
From the option menu the “Properties” function option has to be selected.



Within the properties of the standard the Tab “Standard Tolerances” has to be selected.
Once a sigma limit has been entered the button “Compute Logical Tolerances” has to be clicked. A set of DL*, Da*, Db*, DC* and DH* and the CMC P/F tolerance will be provided.

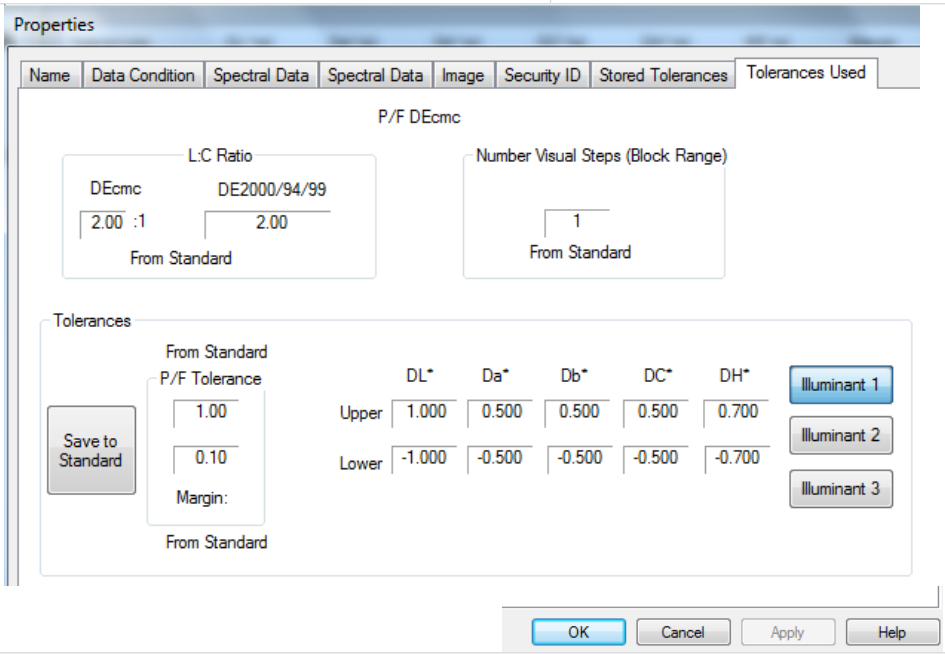
How to transfer tolerances from one standard to another standard?

Sometime it is useful to transfer the tolerances from one standard to another standard. This can easily be done.



Let's assume that the standard Brown 1 contains the tolerances, DL* 1, Da* 0.5, Db* 0.5, DC* 0.5 DH* 0.7 which need to be transferred to Woodrose 1 – the following way of operation should be used.

- Select Brown 1 (the standard, which provides the tolerances) as the current standard
- Mark Woodrose 1 (the standard, which should receive the tolerances)
- Press right mouse key and select Properties



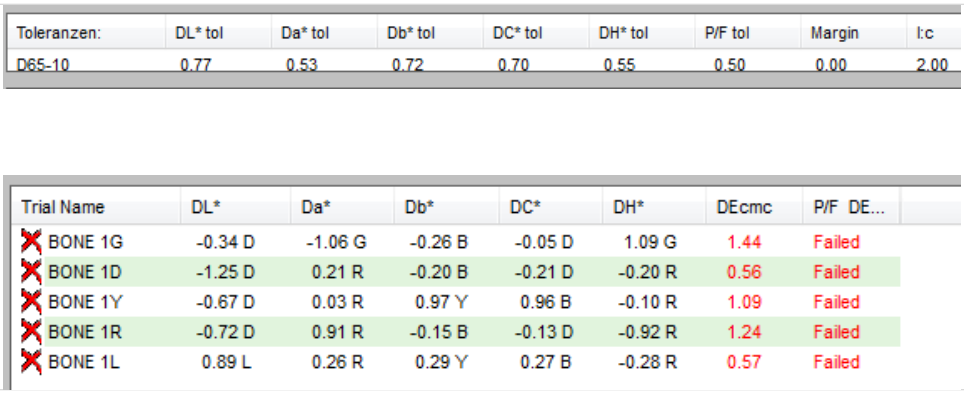
In the tolerance used the last used tolerances will be shown – by pressing Save to Standard – these tolerances will be stored to the standard.

Which tolerances are shown and used?

As indicated earlier iQC a very complex and flexible way to handle tolerances. Which tolerances are shown and used for Pass/Fail – depends on the several settings in the System Defaults and in the standard properties.

Information about System settings you will find here: When and how to use system tolerances?
Information about Standard properties: When and how to use individual tolerances for each standard?

In the iQC program tolerances and Pass/Fail-Decisions will be shown in the Standard/Multi Trial View.



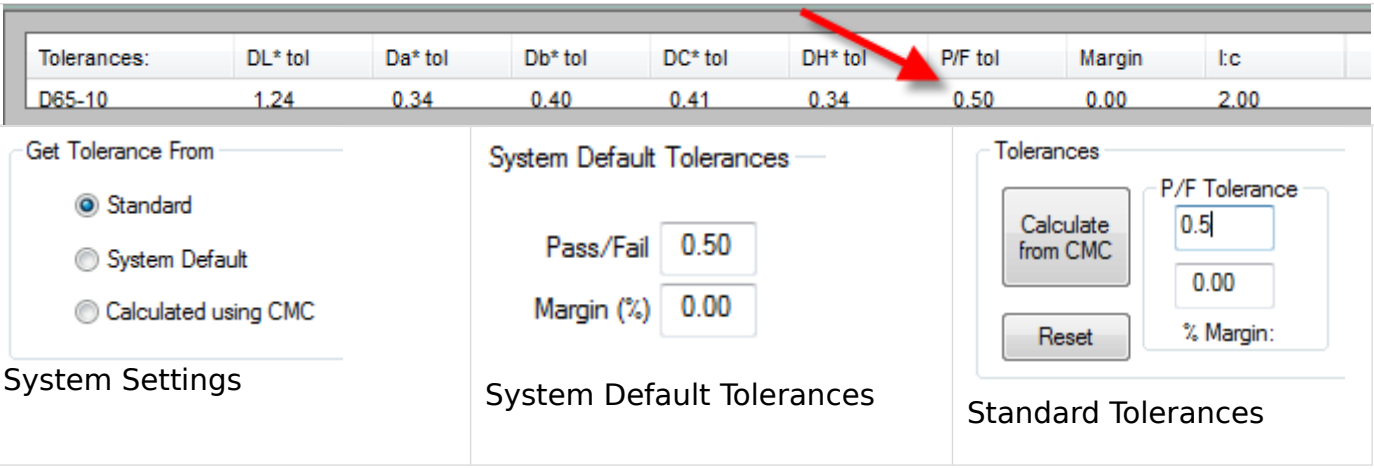
Toleranzen:	DL* tol	Da* tol	Db* tol	DC* tol	DH* tol	P/F tol	Margin	l:c
D65-10	0.77	0.53	0.72	0.70	0.55	0.50	0.00	2.00

Trial Name	DL*	Da*	Db*	DC*	DH*	DEcmc	P/F DE...
BONE 1G	-0.34 D	-1.06 G	-0.26 B	-0.05 D	1.09 G	1.44	Failed
BONE 1D	-1.25 D	0.21 R	-0.20 B	-0.21 D	-0.20 R	0.56	Failed
BONE 1Y	-0.67 D	0.03 R	0.97 Y	0.96 B	-0.10 R	1.09	Failed
BONE 1R	-0.72 D	0.91 R	-0.15 B	-0.13 D	-0.92 R	1.24	Failed
BONE 1L	0.89 L	0.26 R	0.29 Y	0.27 B	-0.28 R	0.57	Failed

Tolerances are shown in the Standard/Multi Trial View, if the option is activated.

Decisions about P/F are based on the displayed tolerances and the system settings.

Tolerances – P/F on Total difference only

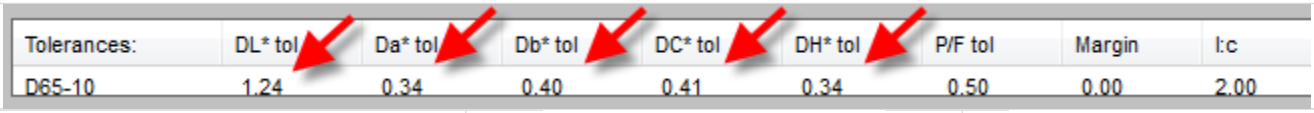


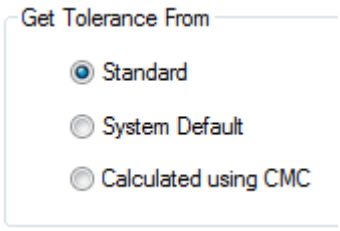
System Settings

System Default Tolerances

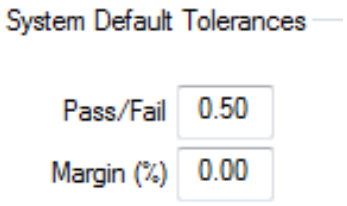
Standard Tolerances

- In the Systemsettings (F2-Tab:QC) it is defined where to get the tolerances from
- Additional the System Tolerance is defined at the this location
- The Tolerance for the standard is defined for each standard in its properties
- Whats shown in the tolerance display in the iQC depends on the settings according to the following decision flow.
  - 1
    - “Get Tolerance From” = Standard
    - P/F-value for the Standard = available
    - Show: P/F tolerances from Standard
  - 2
    - “Get Tolerance From” = Standard
    - P/F-value for the standard = 0
    - P/F-value for System Default Tolerances = available
    - Show: P/F of System Default Tolerances
  - 3
    - “Get Tolerance From” = Standard
    - P/F-value for the standard = 0
    - P/F-value for System Default Tolerances = 0
    - Show: 0
      - Attention: A Pass/Fail decision is still done on CMC=1
  - 4
    - “Get Tolerance From” = Systemstandard
    - P/F-value for System Default Tolerances = available
    - Show: P/F of System Default Tolerances
  - 5
    - “Get Tolerance From” = Calculated using CMC
    - Show = 0
      - Attention: A Pass/Fail deicision is still done on CMC=1

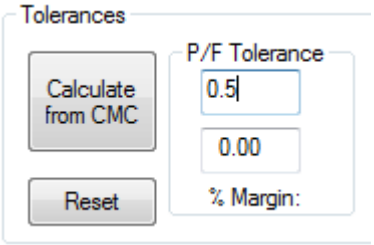




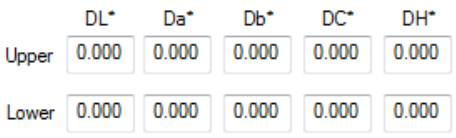
System-Einstellungen



Systemstandard



Standard Toleranz



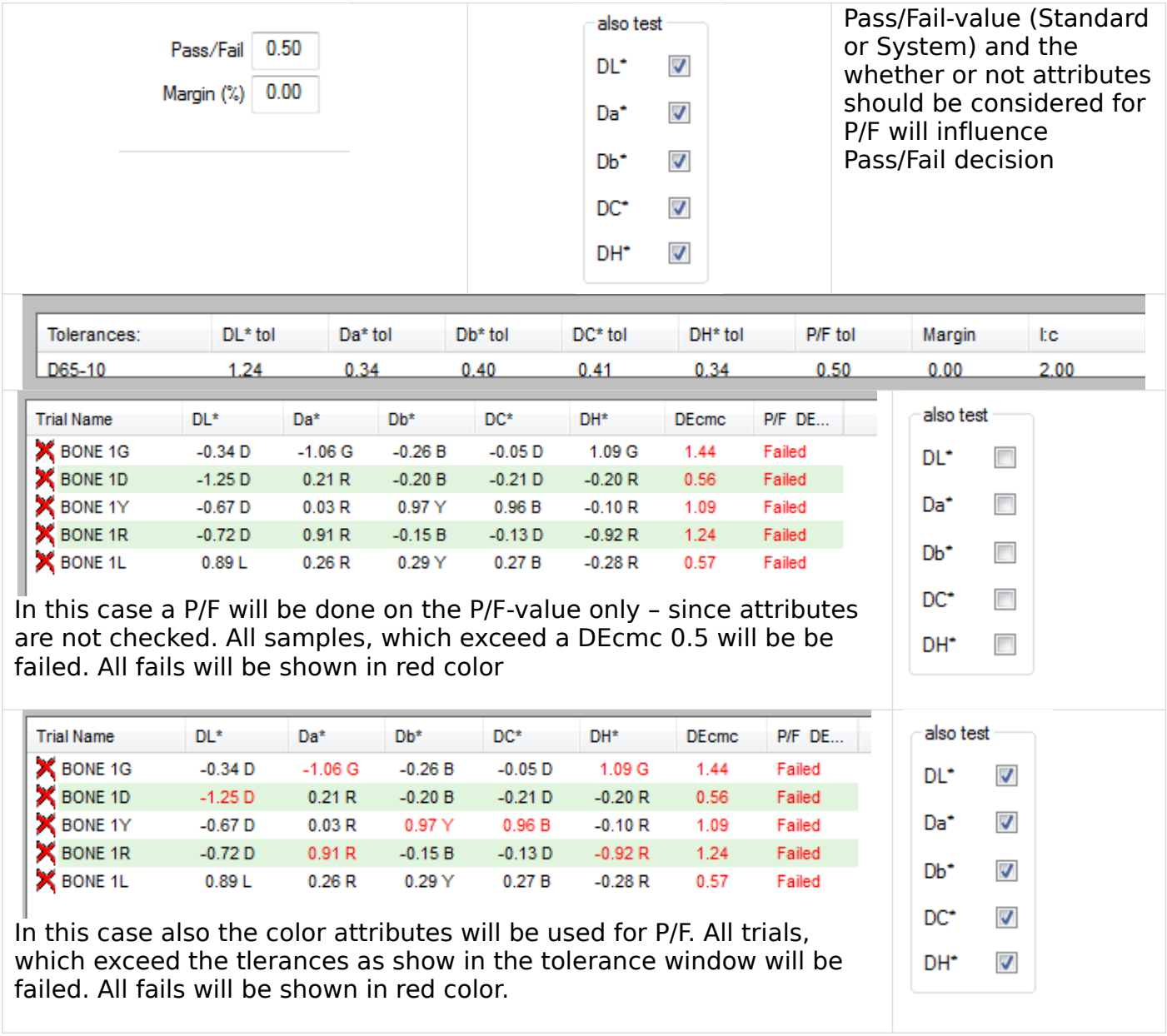
Systemstandard Attribute Toleranzen

Standard Attribute Toleranzen

- In the Systemsettings (F2-Tab:QC) it is defined where to get the tolerances from
- Additional the System Tolerance is defined at the this location
- The Tolerance for the standard is defined for each standard in its properties
- What' s shown in the DL* Da" Db" tolerance display in the iQC depends on the settings according to the following decision flow.
  - 1
    - Get Tolerance From = Standard
    - Standard Attribute Tolerances (dL* da* db" dC" DH*) = available
    - Show: Attribute Tolerance from Standard
  - 2
    - Get Tolerance From = Standard
    - Standard Attribute Tolerances (dL* da* db" dC" DH*) = 0
    - Standard P/F-Tolerance = available
    - Show: Attribute Tolerances calculated based on P/F-value from Standard
  - 3
    - Get Tolerance From = Standard
    - Standard Attribute Tolerances (dL* da* db" dC" DH*) = 0
    - Standard P/F-Tolerance = 0
    - System Default Attribute Tolerances (dL* da* db" dC" DH*) = available
    - Show: Attribute Tolerances from System
  - 4
    - Get Tolerance From = Standard
    - Standard Attribute Tolerances (dL* da* db" dC" DH*) = 0
    - Standard P/F-Tolerance = 0
    - System Default Attribute Tolerances (dL* da* db" dC" DH*) = 0
    - System Default P/F-Tolerances = available
    - Show: Attribute Tolerances based on calculation of P/F-Tolerances from System
  - 5

        - Get Tolerance From = Standard
        - Standard Attribute Tolerances (dL* da* db” dC” DH*) = 0
        - Standard P/F-Tolerance = 0
        - System Default Attribute Tolerances (dL* da* db” dC” DH*) = 0
        - System Default P/F-Tolerances = 0
        - Show: Attribute Tolerances based on calculation of Default Tolerance of 1
    - 6
        - Get Tolerance From = System Default
        - System Default Attribute Tolerances (dL* da* db” dC” DH*) = available
        - Show: Attribute Tolerances from System Default
    - 7
        - Get Tolerance From = System Default
        - System Default Attribute Tolerances (dL* da* db” dC” DH*) = 0
        - System Default P/F-Tolerance = available
        - Show: Attribute Tolerances calculated from System P/F-Default
    - 8
        - Get Tolerance From = System Default
        - System Default Attribute Tolerances (dL* da* db” dC” DH*) = 0
        - System Default P/F-Tolerance = 0
        - Show: Attribute Tolerances calculated from Default Tolerance of 1
    - 9
        - Get Tolerance From = Calculated from CMC
        - Show: Attribute Tolerances calculated from Default Tolerance of 1

Which decision will be taken?



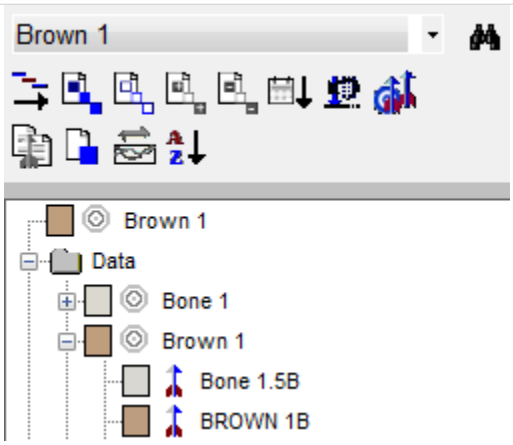
In this case a P/F will be done on the P/F-value only – since attributes are not checked. All samples, which exceed a DEcmc 0.5 will be be failed. All fails will be shown in red color

In this case also the color attributes will be used for P/F. All trials, which exceed the tlerances as show in the tolerance window will be failed. All fails will be shown in red color.

QC Tree View - operation

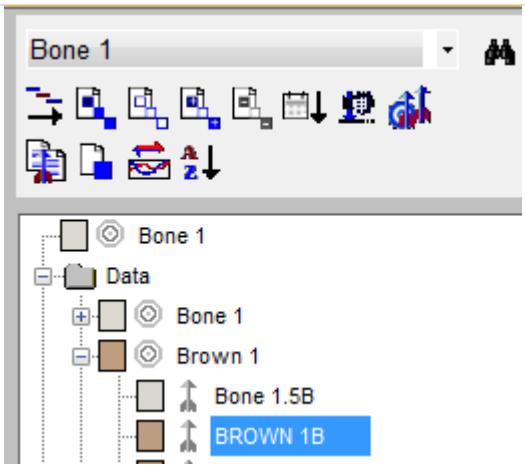
How to change the association of trial to a standard?

Within the operation it can happen, that a trial will by mistake linked to the wrong standard



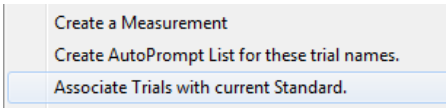
In this example the trial Bone 1.5B has been associated to the standard Brown 1.

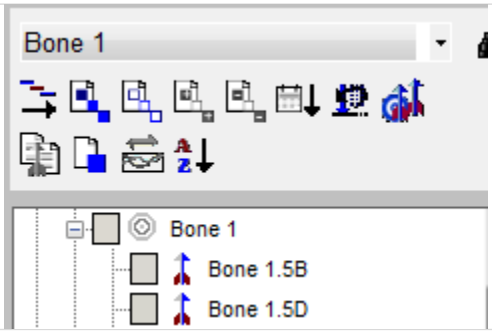
In order to change it the following procedure has to be used.



Within the standard selection field the target standard Bone 1 has to be selected.
Next the trial, which needs to be transferred, has to be marked and right mouse key has to be pressed.

Next the function Associate Trial with current Standard has to be selected

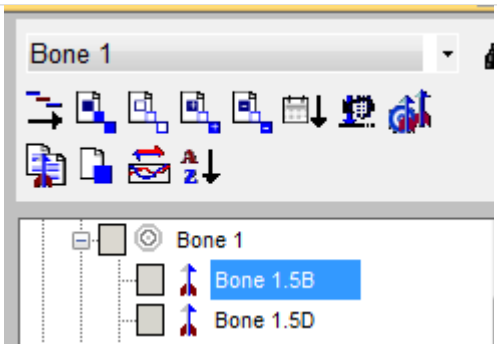




The trial Bone 1.5B has been associated to standard Bone 1

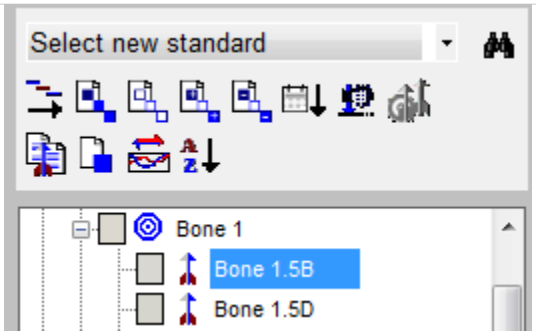
How to remove the association of trial to a standard?

Within the operation it sometimes can be required to completely remove a association to a standard



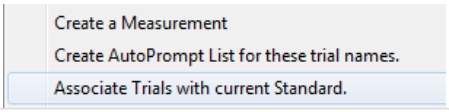
In this example the trial Bone 1.5B has been associated to the standard Bone 1.

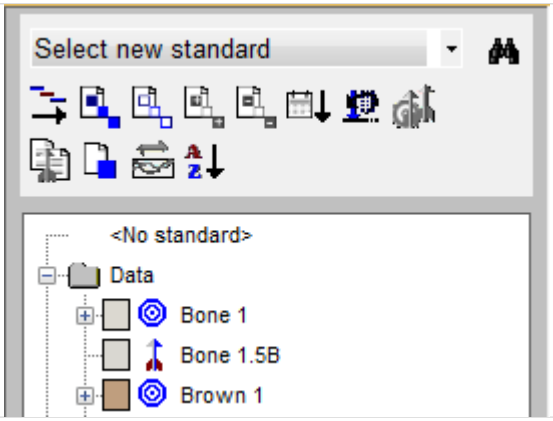
If this association should be completely removed, the following can be done



Within the standard selection field the target standard <no standard> has to be selected.
Next the trial, which needs to be transferred, has to be marked and right mouse key has to be pressed.

Next the function Associate Trial with current Standard has to be selected



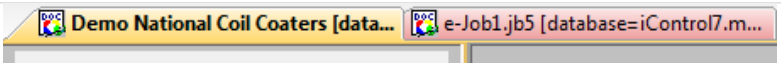


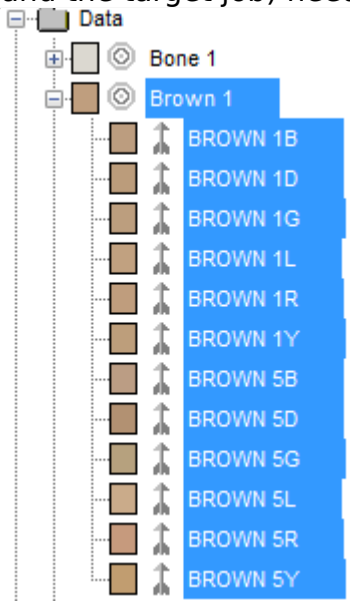
The trail Bone 1.5B is now without any association.

How to copy a series of measurements from one job to another job?

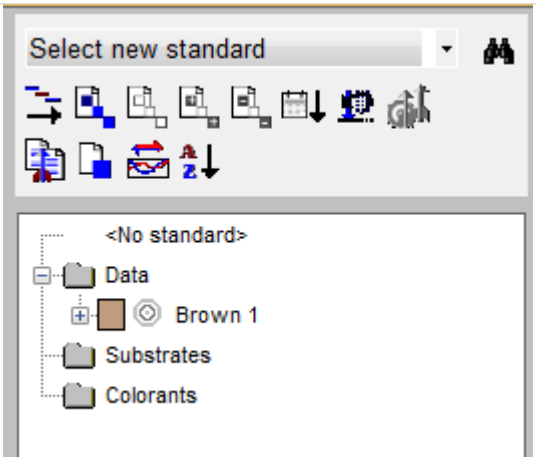
Within the operation it sometimes can be necessary to copy a series of samples from one job to another job.

Both jobs (job with data to be copied and the target job) need to be opend





All data to be copied need to be marked. Keeping the mouse pressed the mouse pointer has to be moved to the header of the target job and as soon the target job opens the mouse pointer has to be moved into the data section of the target job. Here the mouse will be released.
This copies all the data.

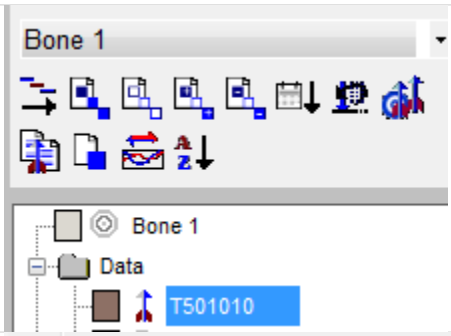


All data have been transferred to the new job

The same functionality can be reached by masking all samples to be copied – then use [Ctrl] + [C] – then go to the target job and use [Ctrl] + [V]

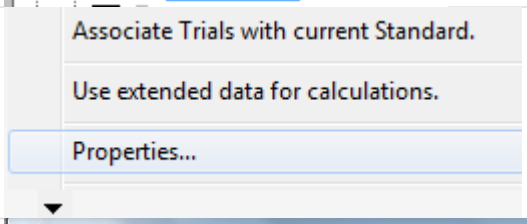
How can I edit a standard or trial?

Sometimes it is required to do some changes to the record of a standard or sample. F.e. change the name or change the type of record or ….

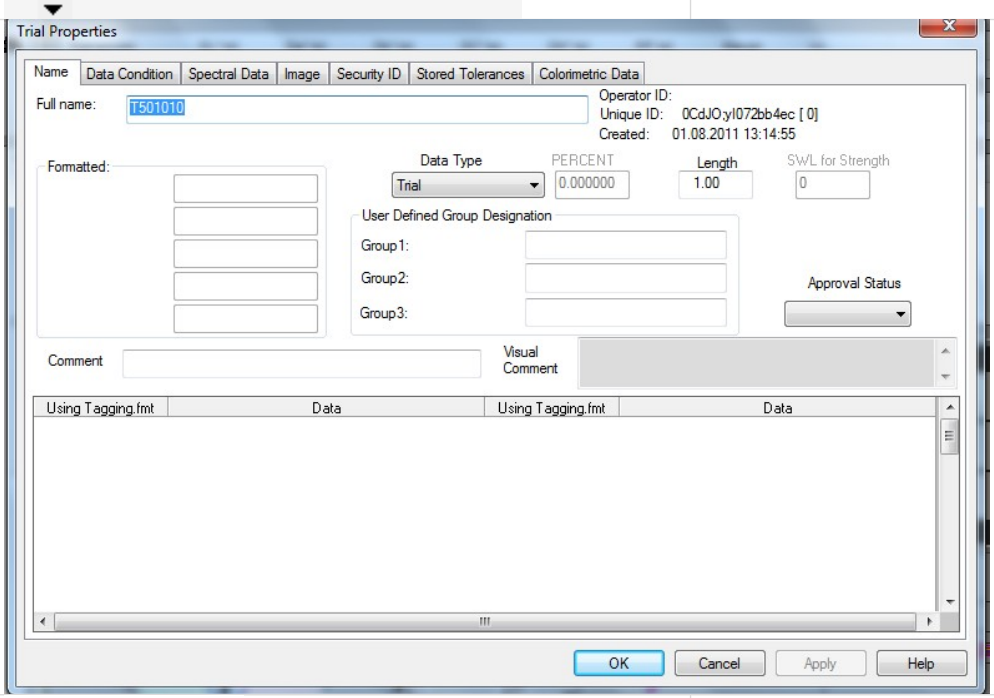


Example:
The trial 501010 has been measured like a trail – it needs to become a standard and a different name has to be applied

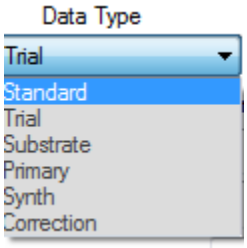
Click the trial – then press the right mouse key



Select the properties function

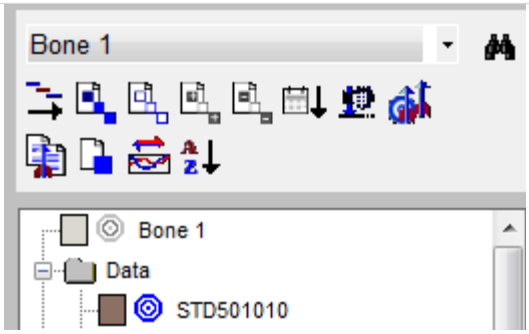


First we select the Tab Name and do the modification to the Full-Name



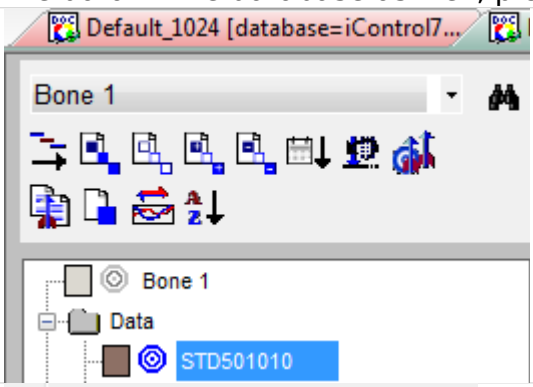
Next click on the arrow underneath the Data Type and we select the Standard

Finally we press apply and ok

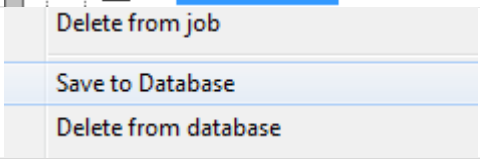


The previous trail T501010 is now a standard with the name STD501010

These changes will be made to the data in the job only. If you want to make them apply to the data in the database as well, please proceed as follows



Click the desired sample



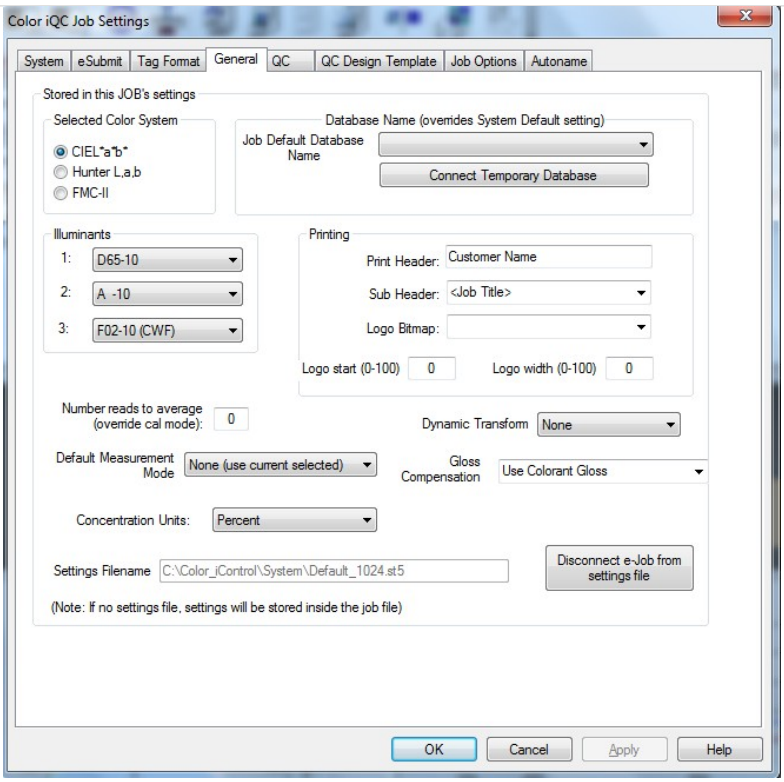
Select save to database

e-Job's

How can I make sure, that changes, which have been made to a job will still be the same, if I start the job the next time again?

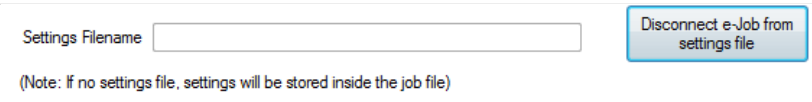
Situation:
I have modified a job to give me very specific display of data and I experience, that anytime i start the job again, that I am back to the old settings.

Solution:
Your job is linked to a setting file which contains a different data display. Anytime you start the job – it will use the settings as defined in this setting. If you want, that the job will keep use your modified settings, you will have disconnect the job from the setting file.



If you want to disconnect the e-job from the default setting – do the following:

- Go to the Color iQC Settings [F2].
- Choose the TAB General
- Here you will find which settings file your job is connected to.
- Click the button [Disconnect e-job from settings file].



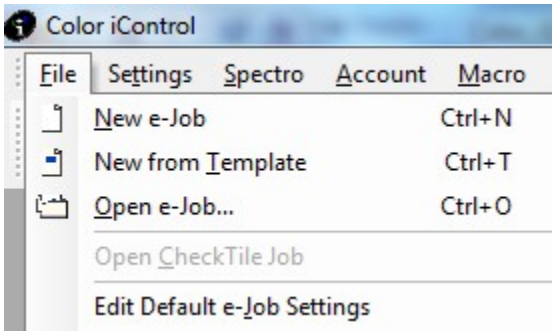
Now the job has been disconnected all settings will be stored within the job now.

How can I make sure, that changes will apply to new jobs?

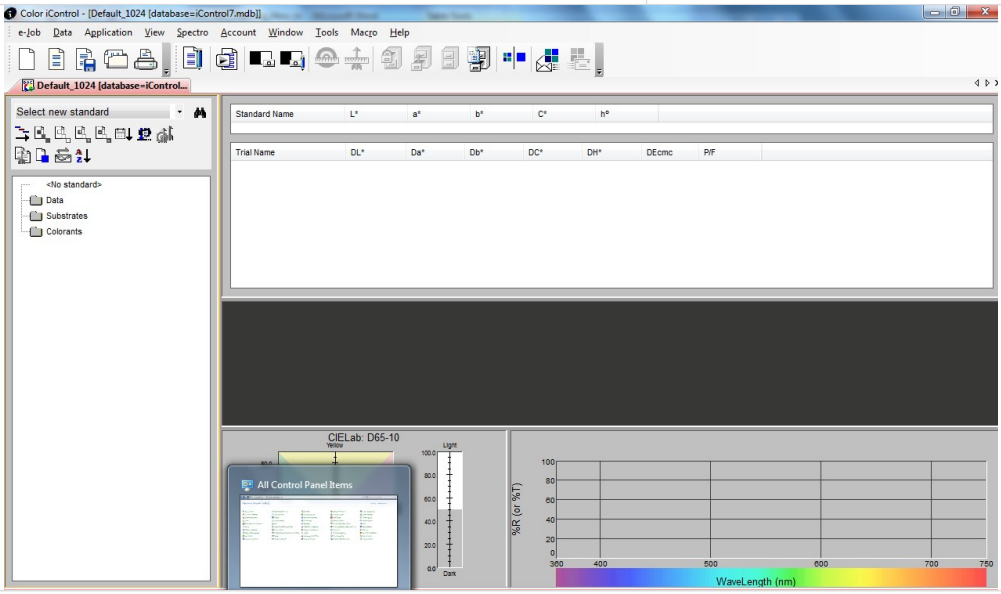
Situation:
Changes have been made to the jobs for example – a new logo is used - or a new selection of illuminants has been applied - or a change in the job options has applied. How can these changes be applied to new jobs?

Solution:
All new jobs, which are started from the default job  will use the default job setting. In order to make changes to the appearance of new jobs – the default job has to be edited. Please proceed in the following way.

- Close any open job (this will give a access to the default job



Open the Menu File and select the option Edit default e-Job Settings



In the Color iQC windows or in the [F2] Color iQC settings make all modifications to match up the desired functions.

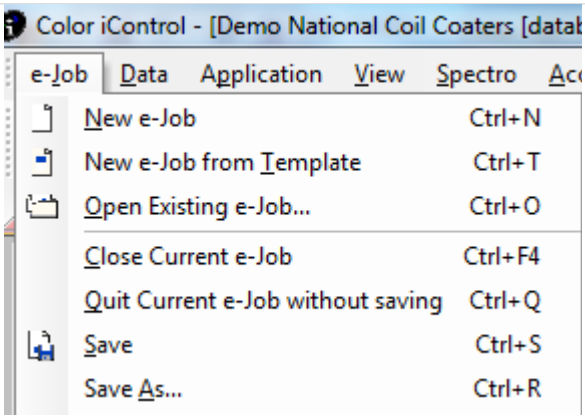
Once all modifications have been made save the default job and close it.

How can I easily get a different view of data for the same standard and trial

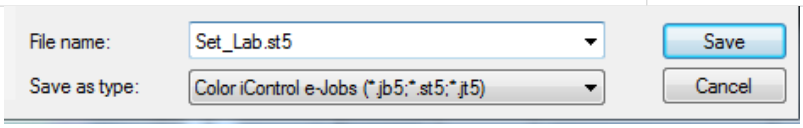
Situation:
A customer desired a solution, which does allow to easily switch between an LabCH* display of data and and an display of XYZxy - data

Trial Name	L*	a*	b*	C*	h°
Bone 1.5D	85,23	-0,79	4,38	4,45	100,22
Bone 1.5L	87,95	-0,08	4,87	4,87	90,95
Bone 1.5G	86,19	-1,86	4,37	4,74	113,02
Bone 1.5Y	85,88	-0,22	6,04	6,05	92,11
Bone 1.5R	85,84	0,54	5,06	5,09	83,86
Bone 1.5B	86,17	-0,54	3,42	3,46	99,03

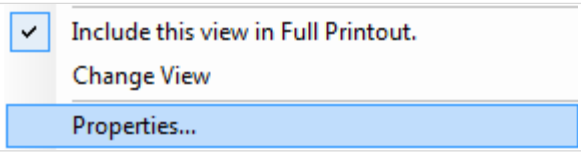
Situation – customer has already an L*a*b* display and wants to change to an XYZxy display



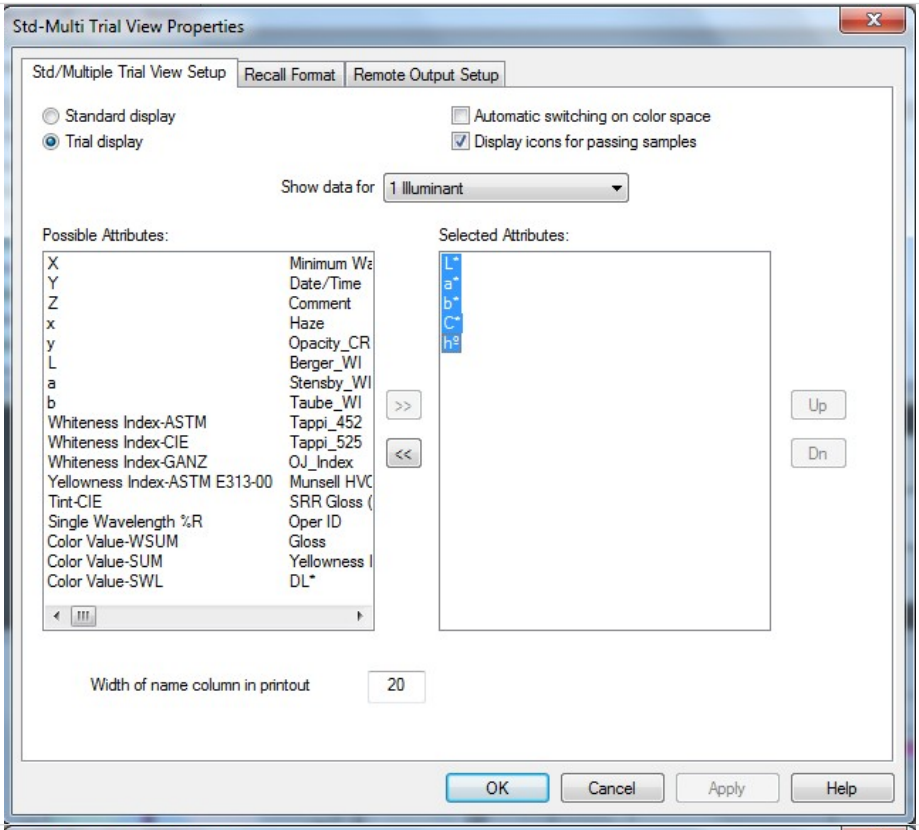
With the function Save As.. ([CTRL]+[R]) the actual settings can be saved



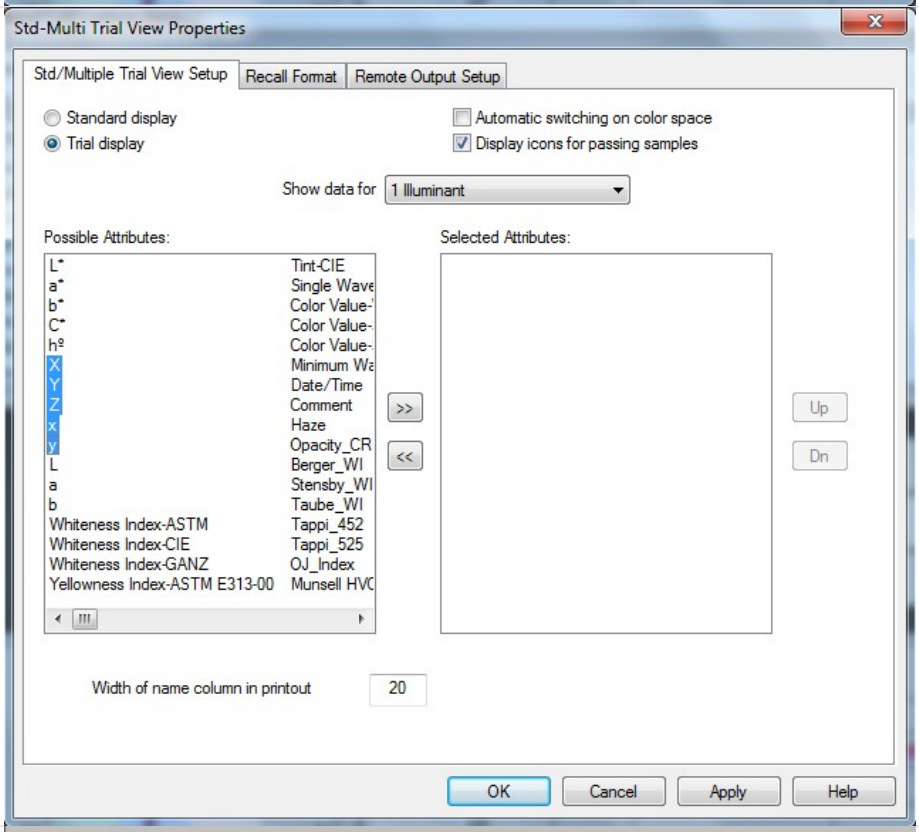
We save this as Set_Lab.st5 (st5 stands for settings_type 5)



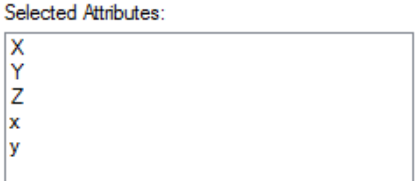
Next with the right mouse key in the multi_data_view and select the option Properties



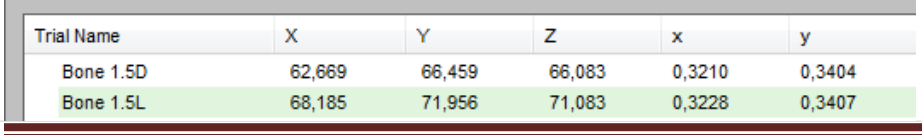
We mark the content of the right box (which we want to be replaced) and press the key facing to the left



We mark the desired attributes in the left box and press the key facing the right.

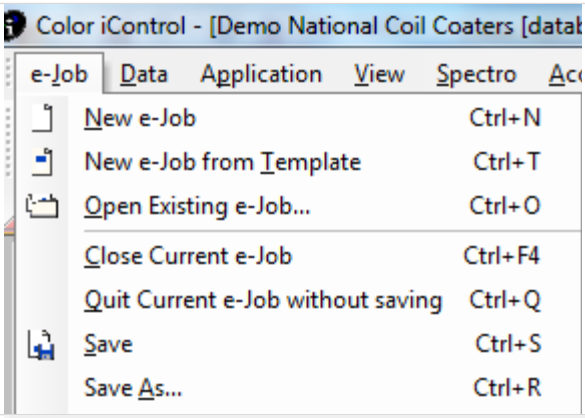


Once the new attributes have been listed in the right box we press Apply and OK

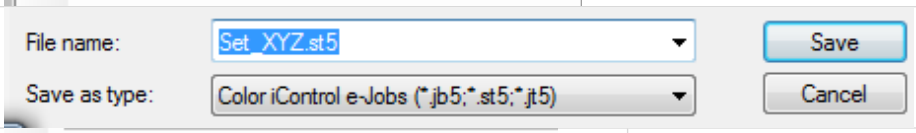


Trial Name	X	Y	Z	x	y
Bone 1.5D	62,669	66,459	66,083	0,3210	0,3404
Bone 1.5L	68,185	71,956	71,083	0,3228	0,3407

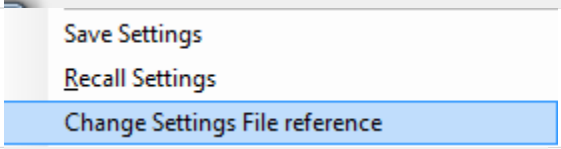
The changes have now been applied in the job



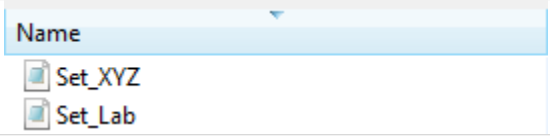
With the function Save As.. ([CTRL]+[R]) we save now the actual settings.



We save this as Set_XYZ.st5 (st5 stands for settings type 5)



In the future you can easily select the function Change Settings File reference from the e-job menu

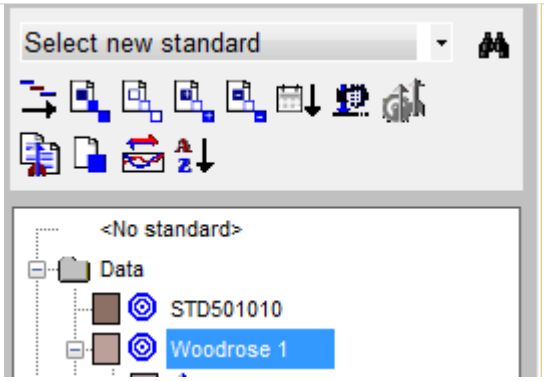


Select the desired setting and your Multi-Trial View Data will change immediately.

Color Search

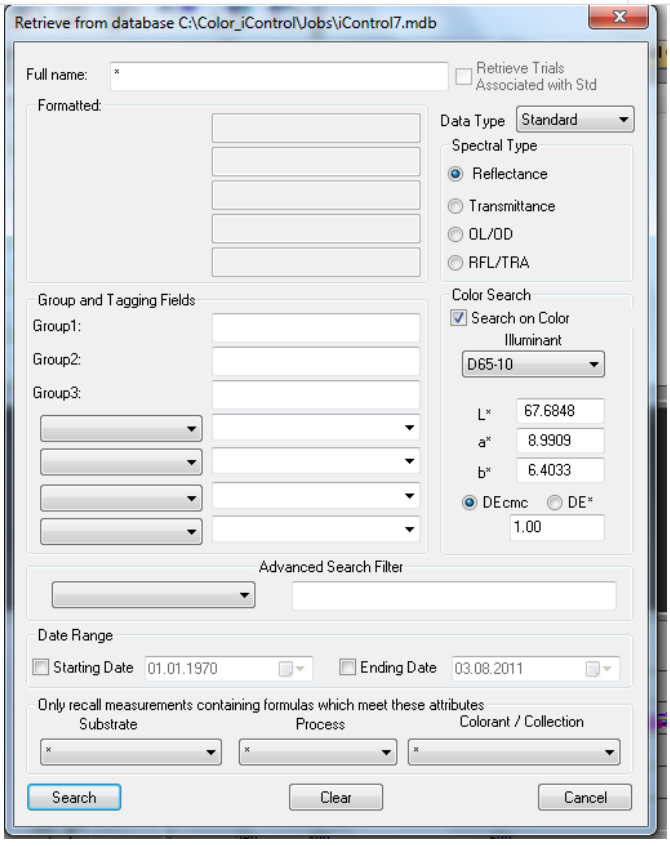
How can I do a color search in the database?

- Step 1 – Decide what you want to search for? Standard or trial?



Have the Standard Selection box “Select New Standard” – If a standard is selected, this will be sample which is used in the color search
Mark the sample for which you want to get the closest match.

Press [Shift] + [F5] – or the proper icon  on the Icon bar



This will open up the “Retrieve from Database” window.

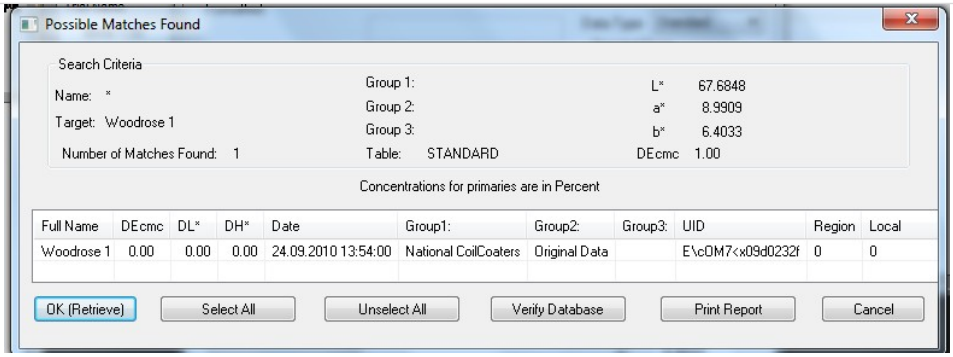
If you want to search the Trials instead of standards you can change the Data Type

Activate the Search on Color Function

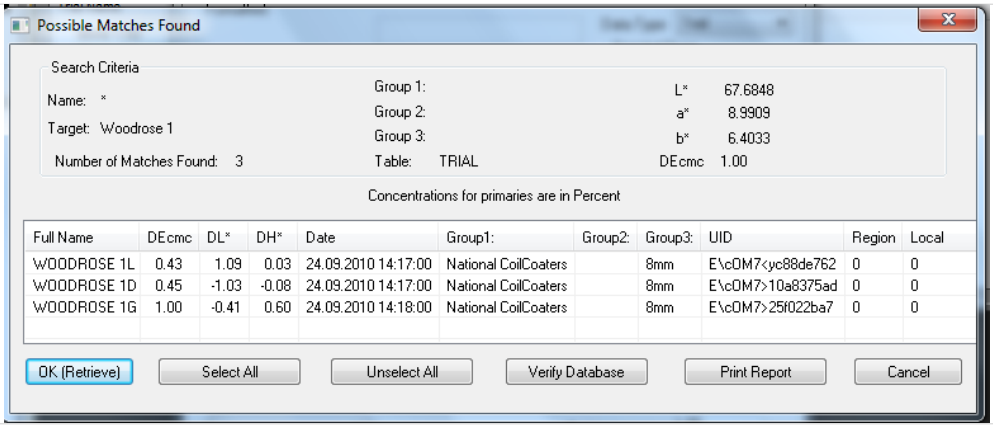
The L*a*b*-data of the current sample have been transferred into this box already.

Define the DEcmc or DE* and the limit.

Press [Search] to start the Search Process



All standards within the tolerance will be shown. Select either individually or [Select All] and press [ok] to transfer them into the job.

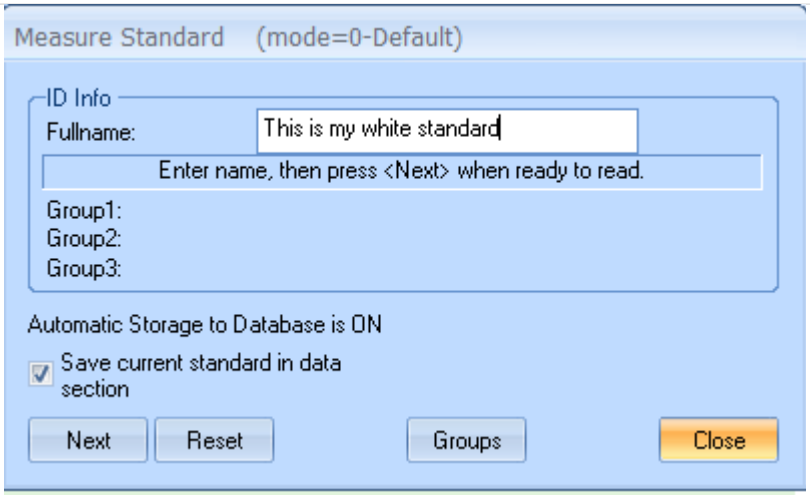


In the Trial database even more samples within tolerances have been found.
Select either individually or [Select All] and press [ok] to transfer them into the job.

Naming options

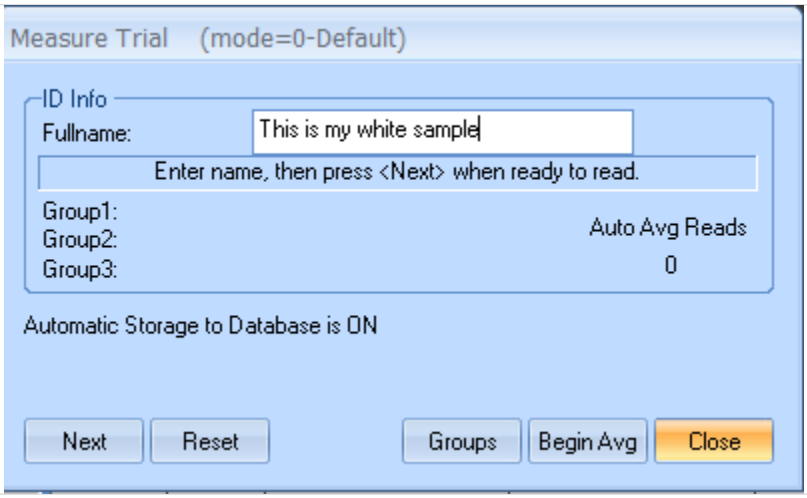
Being able to give the right name to standard and sample is sometimes a challenge since there are customers who desire maximum flexibility and others have a very restricted concept. X-Rite iQC can support almost all these wishes by different methods.

How to use a flexible name?



Up to 50 characters can be used to describe the standard.

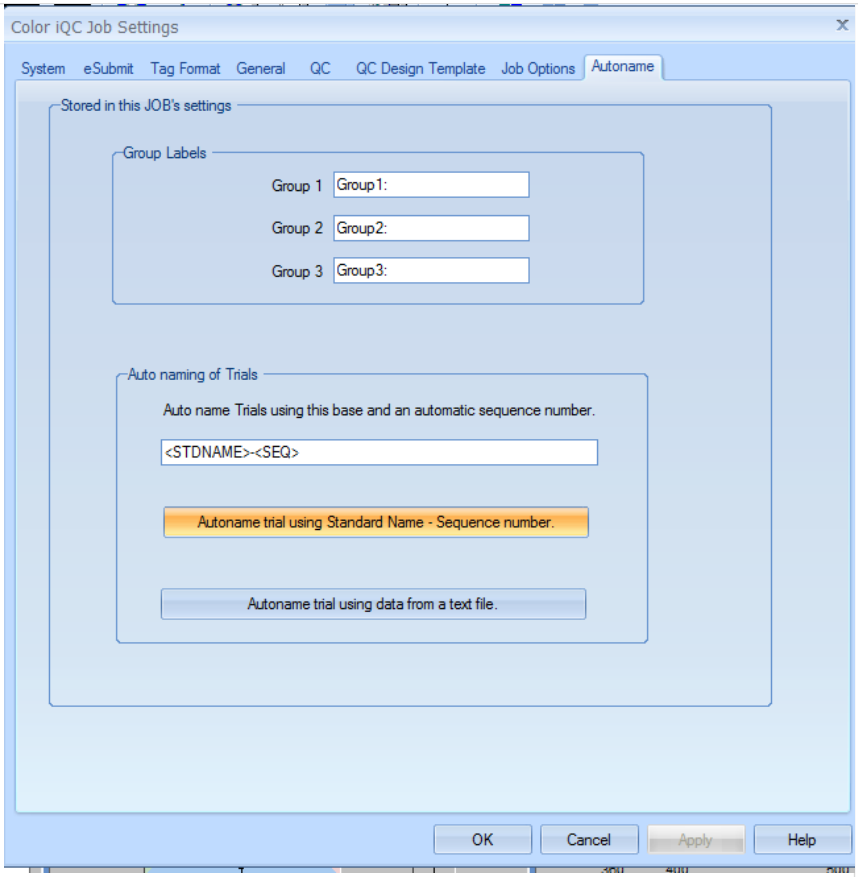
There is no automatism except – as long you stay in the Measure Standard Window the entry box will default with the last Fullname



Up to 50 characters can be used to describe the standard.

There is no automatism except – as long you stay in the Measure Trial Window the entry box will default with the last Fullname

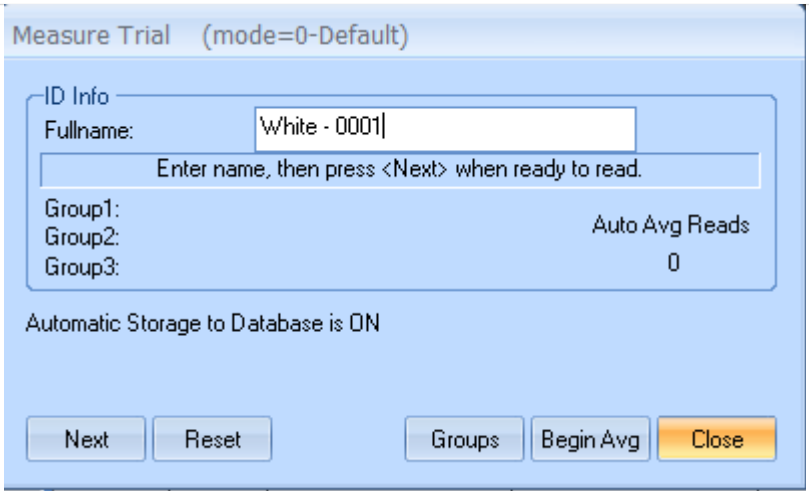
How to use automatically a standard name with a sequence number?



To activate the automatic Sample counting - the option Autoname trial using Standard Name – Sequence Number has to be activated in the Color iQC setting on the tab Autoname.

This will write the following text into the “Auto name Trials….” Entry box

You can replace the <StdName> with a fixed text which would be used for all samples



iQC will automatically suggest in the Measure Trial Windows the Name of the standard – with the sequence Number.

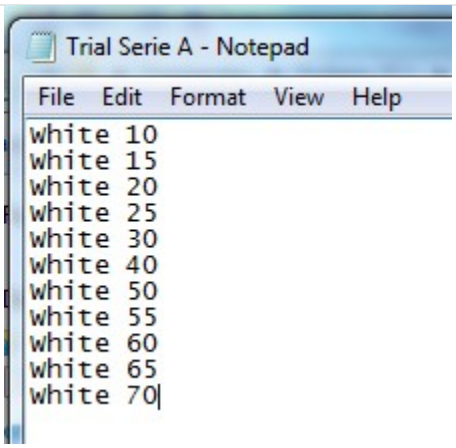
If there is already a series of measurements done the program will automatically suggest the next number

For the trial in a sequence you can overwrite this number.

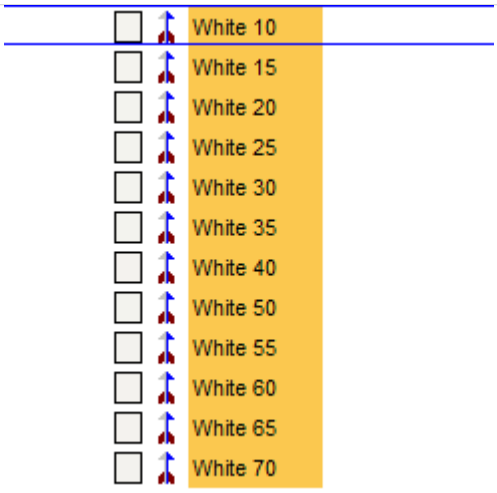
Start the measurement process with next

How to work with predefined trial names from a list?

In some application hundreds of measurements have be made, which all follow the same concept. Instead of entering the name with any sample a list can be provided and the program will automatically take names from the list – exactly in the order.

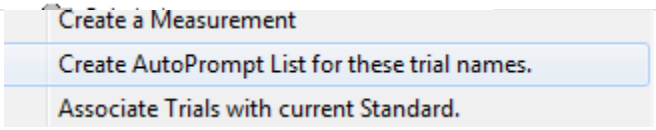


With the notepad program a list of sample name as to be used by iQC has to be generated.
This list can be long as you want

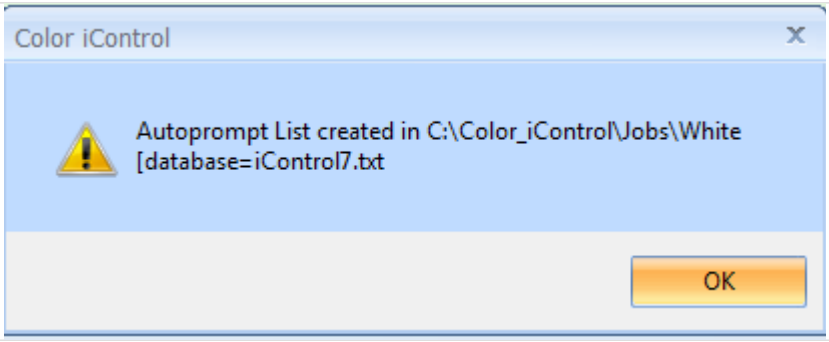


iQC allows to generate such a list directly out of the program

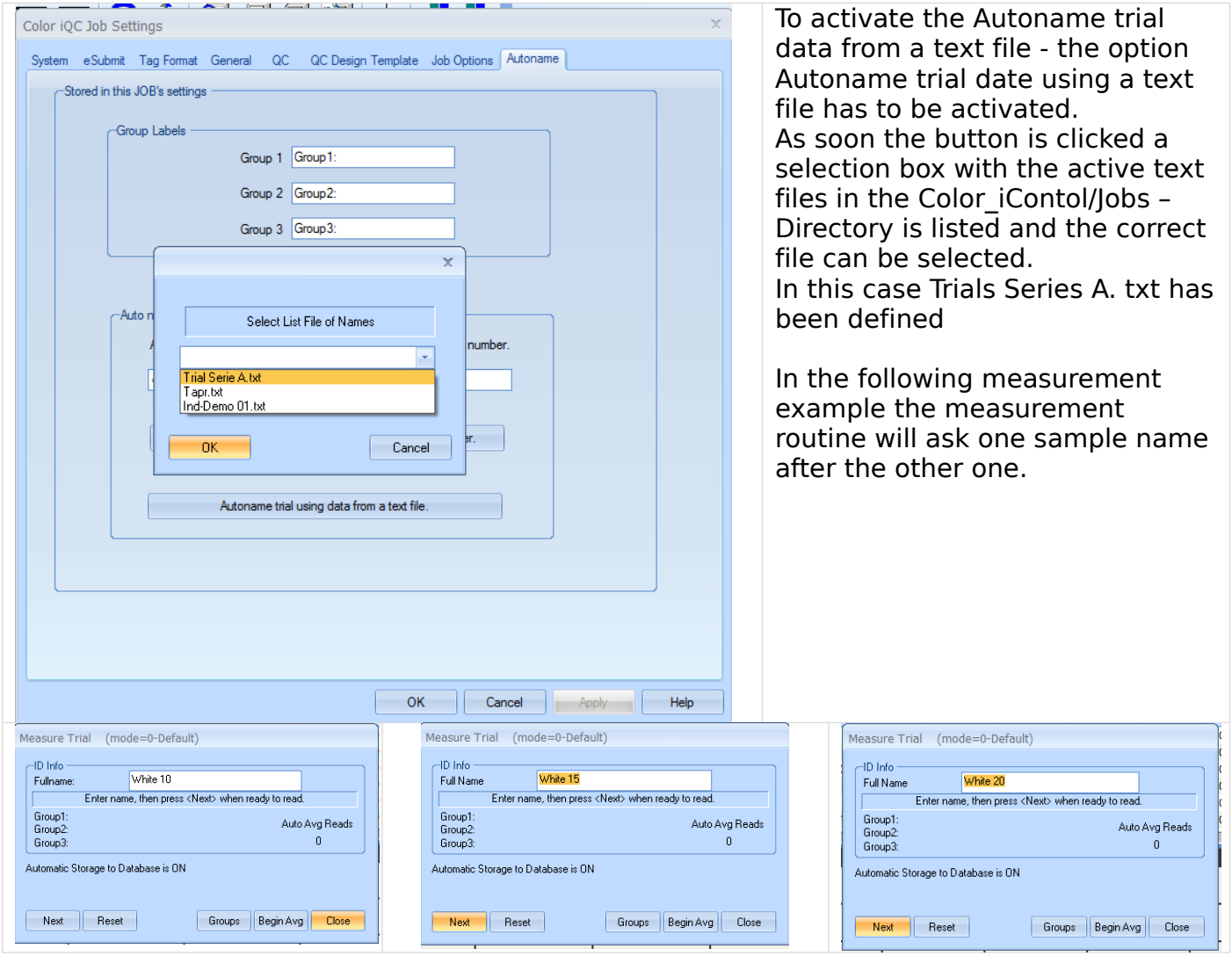
if a series of samples with the target name has been measured already, mark the series of samples and press the right mouse key.



Select the option to “Create AutoPrompt List for these trial names”



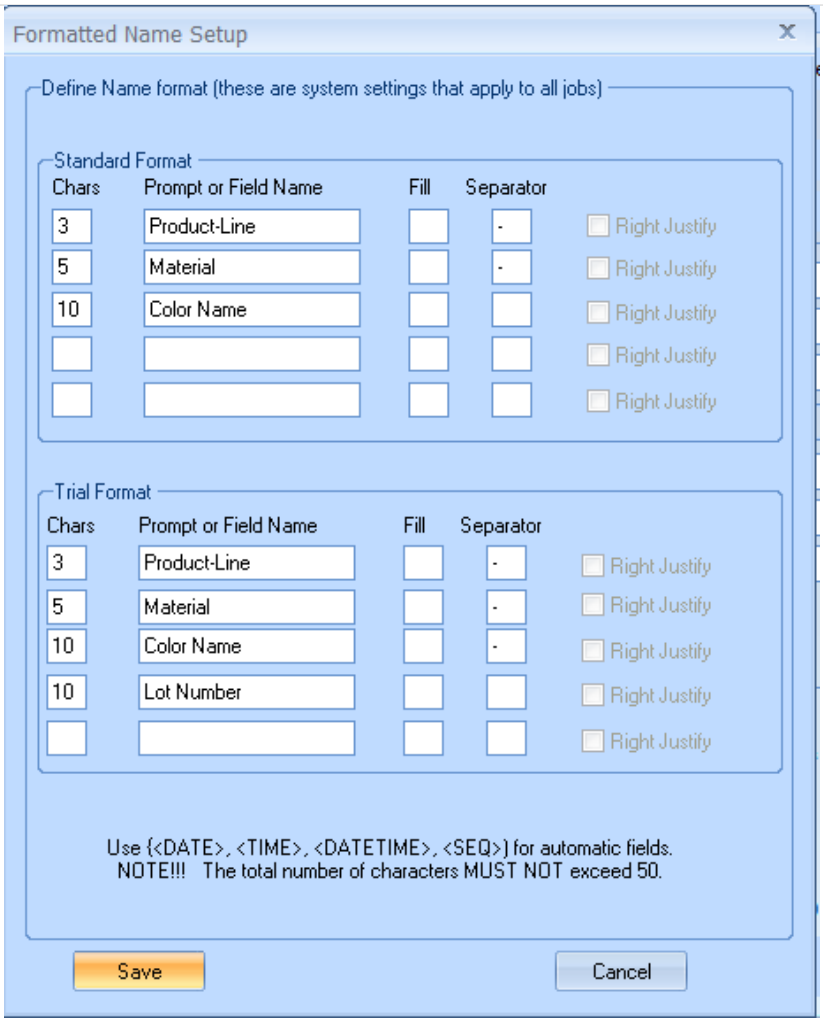
A new list will be AutoPrompt List will be generated in the Jobs Directory



To activate the Autoname trial data from a text file - the option Autoname trial date using a text file has to be activated.
As soon the button is clicked a selection box with the active text files in the Color_iContol/Jobs – Directory is listed and the correct file can be selected.
In this case Trials Series A. txt has been defined

In the following measurement example the measurement routine will ask one sample name after the other one.

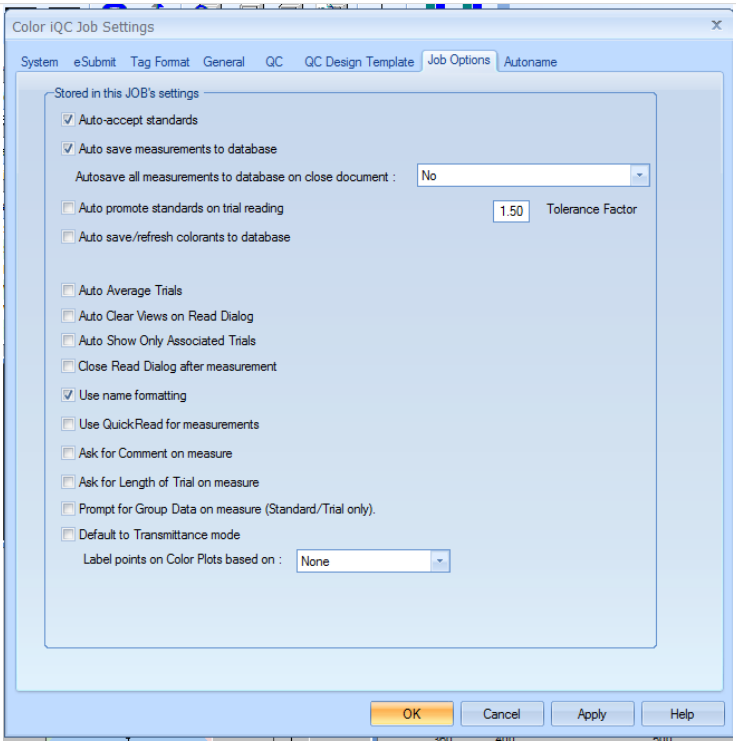
How to use a Formatted Name Setup?



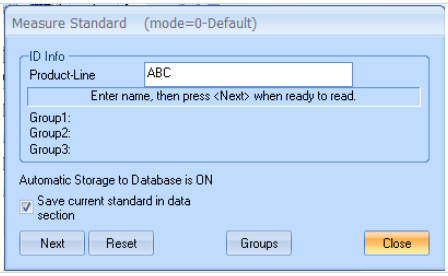
In this example the standard name is an addition of 3 different information the product line (3 digits), the material code (5 digits) and the color name (10) digits

The Trial has an additional Lot Number information with 10 digits

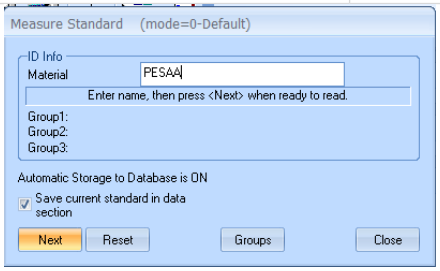
Once the setup has been finalized, the IQC will call for the input item by item.



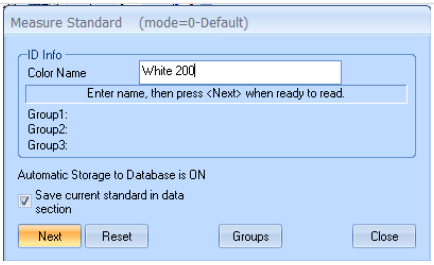
Activate the Use name formatting



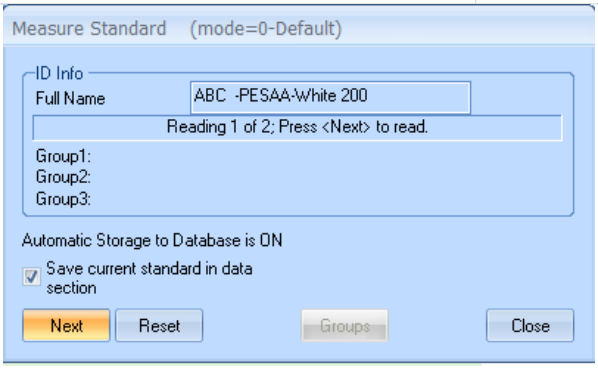
Input Product Line



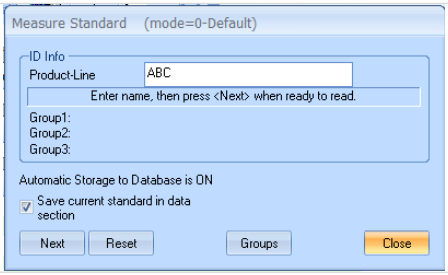
Input Material ID



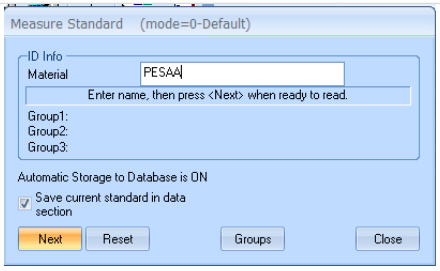
Input Color Name



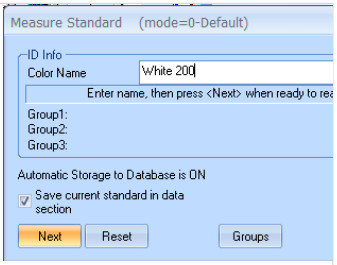
Measurement Windows with the complete name



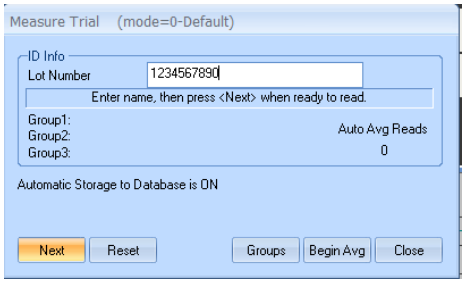
Input Product Line



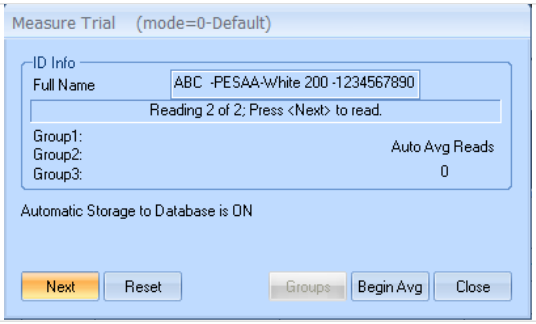
Input Material ID



Input Color Name

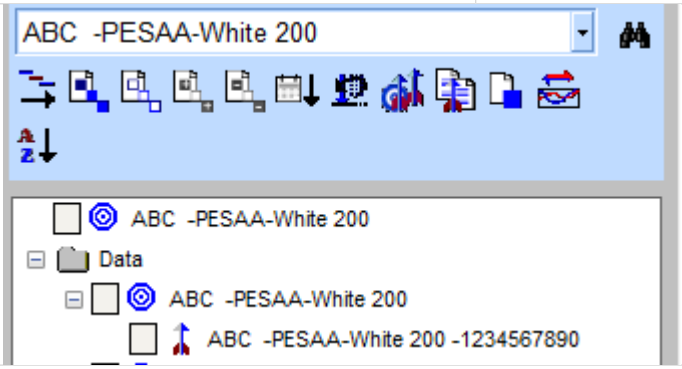


Input Lot Number



Measurement Windows

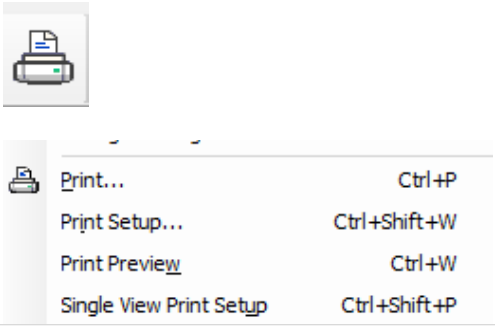
In the measurement window the sample will have the complete name



Results in the tree view

Printer Output

How to start a printout?



A printout can be started on different ways

Click  Button on the iQC-Button-Tab

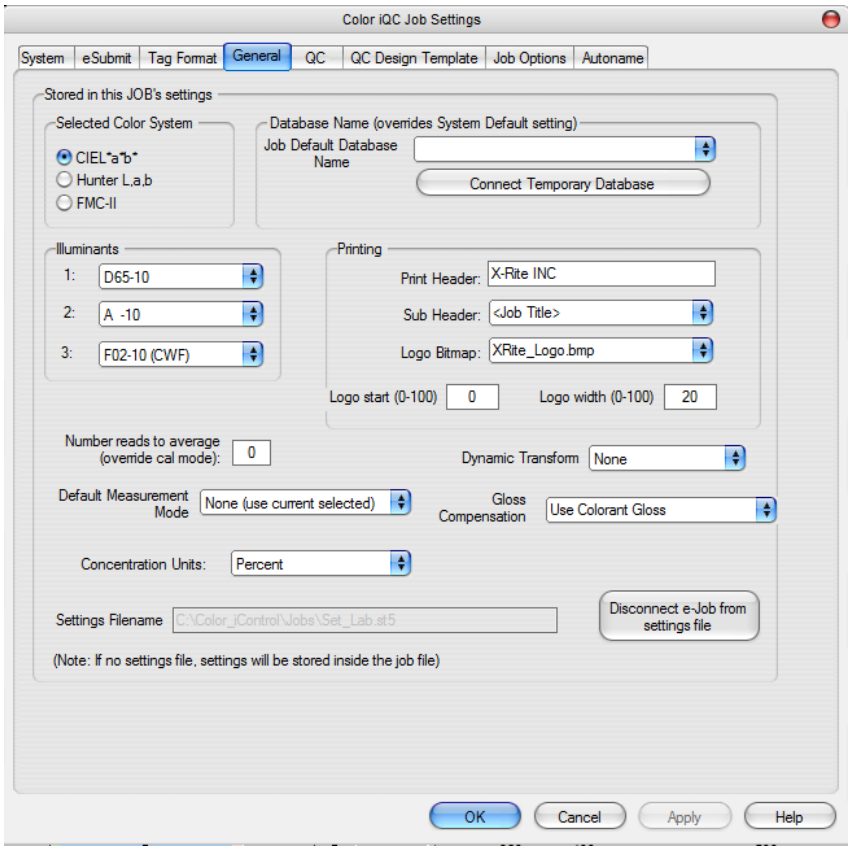
or

Open the e-job menu and select “Print”

Or

Enter [CTRL]+[P]

How to define the header of the printout?



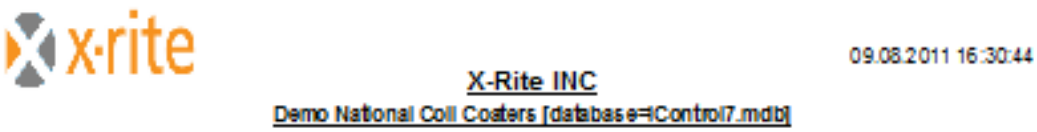
The header of the printout will be defined in the Color iQC Job settings. (Press the button [F2] to enter the Color iQC Job setting)

In the area Printing you can define the Print Header, the Sub Header and can enter a Logo Bitmap with position and size

The Print Header can be defined in each job differently. Print Headers should be saved in the Job-Templates to make sure, that all new jobs created from them will have the correct header.

If all jobs should have the same printer header, the changes should be made in the systems settings (your can enter system settings with [F2] if no job is open.

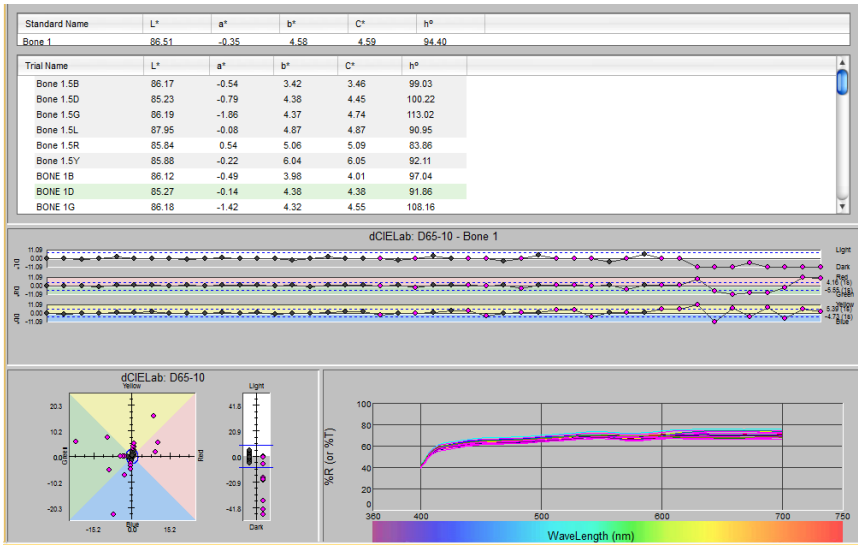
Print Header	Most people enter the company name into the print header
Sub Header	The choices are: Job Title Name of Standard Comment of Standard Blank
Logo	A bmp-file can be positioned in the printer header. JPG and other formats can not be used.
Logo-start	A value between 0 and 100 for the location of the left edge of the bitmap, 0 being the left margin and 100 being the right margin.
Logo-width	Requires a value between 0 and 100 as well, representing the size of the image in percent.



Result of above settings

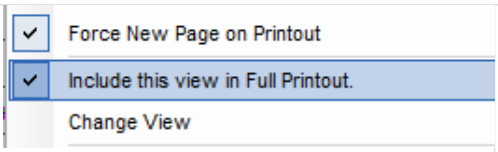
How to define the items of the printout?

Color iQC and Color iMatch allows you to define which items (color data, CIELab-Plot, Trend, Reflectances) should be placed into the printout. The content of printed information is defined by the information in the views.

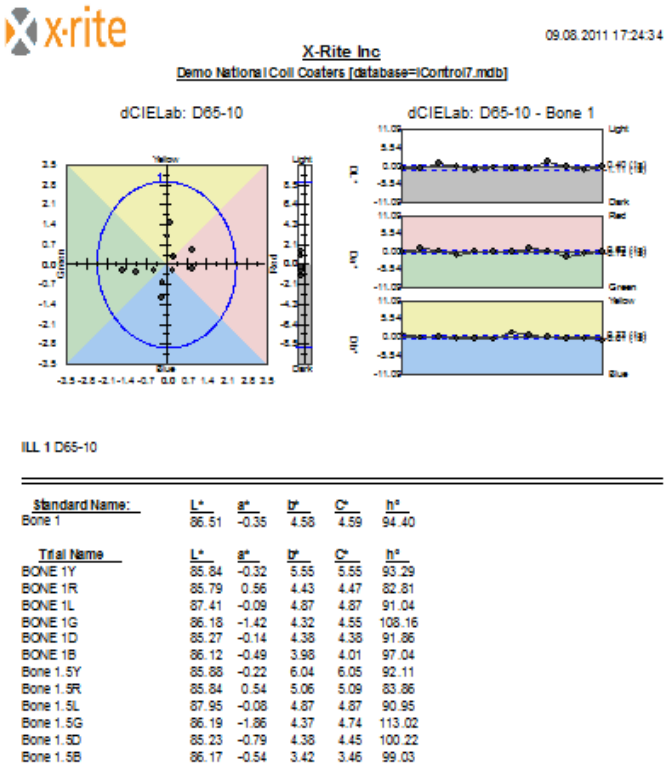


- Each of the views has it ´s properties.
- “MultiTrialData”,
- “Trendplot”,
- “Lab-Graph,
- “Reflectance-Graph”

With a right mouse click in any of the view areas you can open the right mouse menue connected to it. There you can also define wheter the item should be included in the Printout.



If the checkmark in front of “Include this in Full Printout” is set, this item will be included.



09.08.2011 17:24:34

X-Rite Inc

Demo National Coil Coaters [database=iControl7.mdb]

dCIELab: D65-10

dCIELab: D65-10 - Bone 1

ILL 1 D65-10

Standard Name:	L*	a*	b*	C*	h°
Bone 1	86.51	-0.35	4.58	4.59	94.40

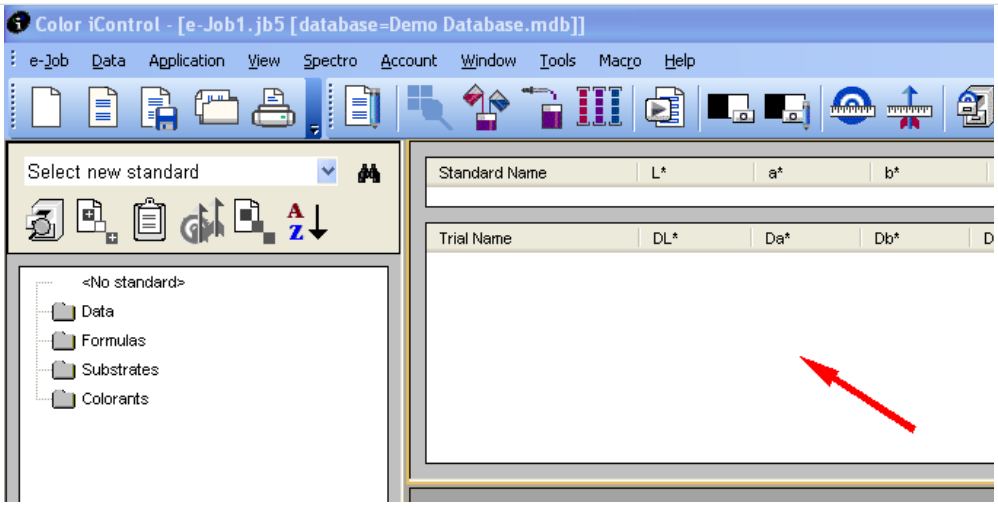
Trial Name	L*	a*	b*	C*	h°
BONE 1Y	85.84	-0.32	5.55	5.55	93.29
BONE 1R	85.79	0.56	4.43	4.47	82.81
BONE 1L	87.41	-0.09	4.87	4.87	91.04
BONE 1G	86.18	-1.42	4.32	4.55	108.16
BONE 1D	85.27	-0.14	4.38	4.38	91.86
BONE 1B	86.12	-0.49	3.98	4.01	97.04
Bone 1.5Y	85.88	-0.22	6.04	6.05	92.11
Bone 1.5R	85.84	0.54	5.06	5.09	83.86
Bone 1.5L	87.95	-0.08	4.87	4.87	90.95
Bone 1.5G	86.19	-1.86	4.37	4.74	113.02
Bone 1.5D	85.23	-0.79	4.38	4.45	100.22
Bone 1.5B	86.17	-0.54	3.42	3.46	99.03

Print out, with header (logo, headline, subheader, date) Cielab, Trendplot and L*a*b*-Data for one illuminant.

Remote Output

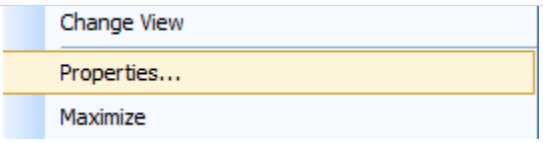
How to set up for Remote Output?

Color iQC and Color iMatch have the option of sending data to a serial communication port or to an ASCII text file. This “Remote Output” is generally used to export colorimetric data to a file which is then sent to a serial printer or imported into other programs such as inventory tracking systems or Excel for custom analysis.

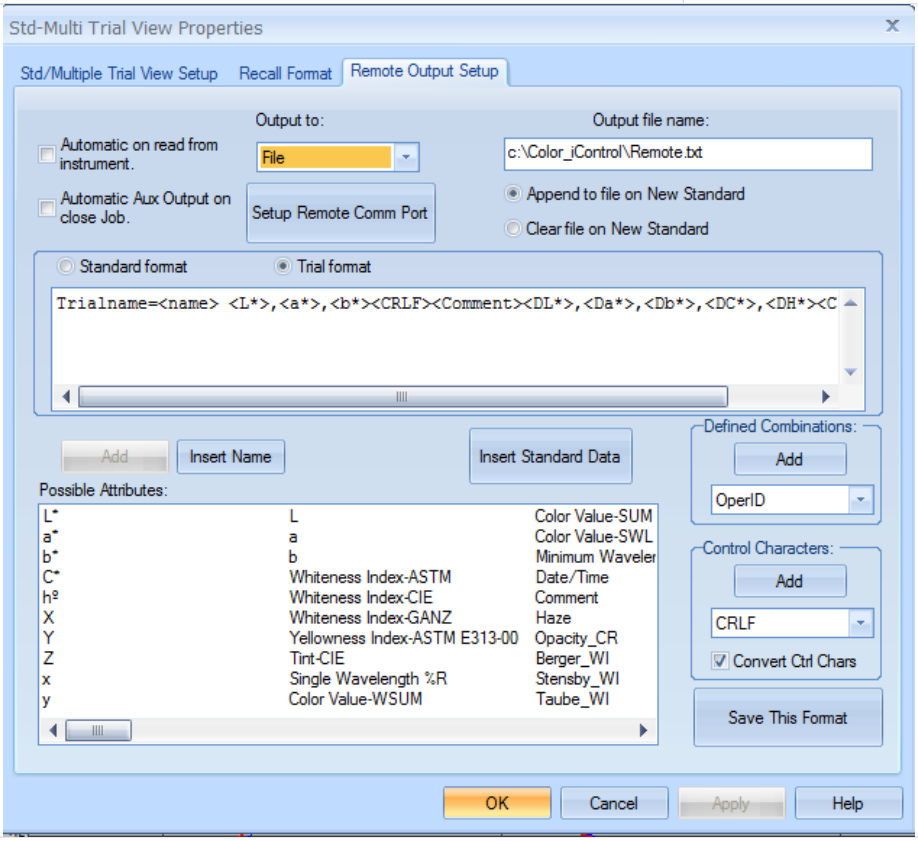


Remote Output is configured from the Standard Muli-Trial view in QC.

Right Click



Select Properties



Within the Std Multi Trial View Properties there is a tab for Remote Output Setup.

There is a setup for the Standard and the Trial output.

Use this tool to setup the output for each section.

Output To:	You have the option to direct the ASCII data to a serial communication port (COM1, COM2 etc.) or to a File.
Output File Name:	If outputting to a file you can specify the name of the file and location. You can use mapped drive letters or UNC (network Universal Naming Convention) to specify a location. (example \\server\foldername\remote.txt).
Setup Remote Comm Port:	If using the COM port you should select Setup Remote Comm Port to set Baud rate, data bits, stop bits and parity.
Automatic on Read from Instrument:	This option will send out the selected data to the com port or file as soon as it is measured from the instrument. Other option is to manually select Remote Output or Aux Output which is discussed later.
Append to file on New Standard or Clear file on New Standard:	These options give you the ability to add to an existing file even when the standard is changed or to clear out any existing data in a file when the standard is changed.
Output Format:	This area is where you will construct the output of data for your

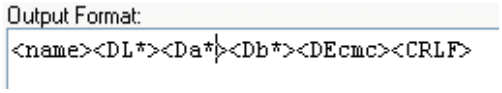
	standard , trial or both.
Insert Name:	This will add “<name>” to the output format section. This will output the name of the trial or standard depending on if you are working in the Standard Output or Trial output.
Insert Standard Data:	This is used when setting up the Trail output and will add <<stdinfo>> to the output format section. When changing or adding a new standard the standard data is output only once then the trail data will follow. If multiple system or multiple standards are being added to a single output file you may want some standard information on each line with the trail information. Any data such as the name and L*, a*, b* setup for the Standard Output will then be inserted for each trial data.
Add:	This button will become active when an attribute is selected from the Possible Attributes section. You can add any of the data available in the Standard/ Multi Trial view such as DL*, Da* and Db*.
Defined Combinations:	You have a drop down list of additional data available to export that is not in the Standard Multi Trial view. • OperID: ID entered when starting Color iQC or iMatch. This is tagged on each measurement. • FileName: Name of the e-job being used during remote output. • Path: The computer location / path of the e-job. • Group 1, Group 2, Group 3: Data from Group 1, 2 or 3. • PFtol: Pass/Fail Tolerance. L:C Ratio, P/F and Margin (2.00:1;P/F=1.00;10.00) • MeasCond: Condition of measurement such as reflectance, large area view, Specular included. • Signature: Digital signature of measurement. • SerialNum: Serial number of spectrophotometer used to measure. • Model: Type of spectrophotometer used to measure • SWL-EWL: Starting wavelength and ending wavelength of measurement • SpectralData: Spectral data • ExtSpectralData: Extended spectral data such as over dark. • IllObs1, IllObs2, IllObs3: Illuminant and observer 1, 2 and 3. • BlockRange: 555 sort block Range • LABtol: L*a*b* tolerances (0.25; 0.19; 0.26) • LCHtol: L*C*h tolerances (0.25; 0.19; 0.26) • OperID: ID entered when starting Color iQC or iMatch. This is tagged on each measurement. • FileName: Name of the e-job being used during remote output. • Path: The computer location / path of the e-job. • Group 1, Group 2, Group 3: Data from Group 1, 2 or 3.

	• PFtol: Pass/Fail Tolerance. L:C Ratio, P/F and Margin (2.00:1;P/F=1.00;10.00) • MeasCond: Condition of measurement such as reflectance, large area view, Specular included. • Signature: Digital signature of measurement. • SerialNum: Serial number of spectrophotometer used to measure. • Model: Type of spectrophotometer used to measure • SWL-EWL: Starting wavelength and ending wavelength of measurement • SpectralData: Spectral data • ExtSpectralData: Extended spectral data such as over dark. • IllObs1, IllObs2, IllObs3: Illuminant and observer 1, 2 and 3. • BlockRange: 555 sort block range • LABtol: L*a*b* tolerances (0.25; 0.19; 0.26) • LCHtol: L*C*h tolerances (0.25; 0.19; 0.26) • TaperTol: Taper tolerances, Standard, average, roll and range (1.00 1.00 0.50 5.00) • idL*, ida*, idb*: Integer(no decimal points) DL*, Da*, Db* (-0.13 D, 0.12 R, 0.05 Y, would be -013, 012, 005) • TagLabel_***xx***: Tag label 01 through 30 • TagData_***xx***: Tag data 01 through 30.
Control Characters:	These can help format the data. • CRLF: Carriage return and line feed • CR: Carriage return • LF: Line feed • TAB: Tab • FF: Form Feed • ETX: End of Transmission • EOT: End of Tape • Bell: Bell • ACK: Acknowledge
Convert Ctrl Chars:	This will convert the control characters text into the ASCII codes. Unchecked the control characters such as <CRLF> will be passed through for the end device like a serial printer to interpret.
Save This Format:	You can save the setups for the remote output to an external file. This allows you to have multiple remote output setups and the ability to send this remote output setup to another Color iQC or Color iMatch system for them to use. In the Output Format area you can add to this directly from your keyboard by clicking in box at the position you want to add something then type. Items between brackets < > will be decoded by the software at the time of export. Anything not in brackets will

	be passed directly out the export. Some examples follow.

Examples

Example 1:

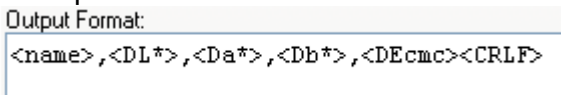


Exported:

Blue Batch 1 -0.13 D 0.12 R 0.05 Y 0.16
Blue Batch 2 -1.21 D 1.93 R -0.31 B 2.18
Blue Batch 3 0.23 L -0.19 G -0.05 B 0.25

The above export will include the trail name, the DL*, Da*, Db*, DEcmc and return to the beginning of the next line for the next trial output. No user typing was added.

Example 2:

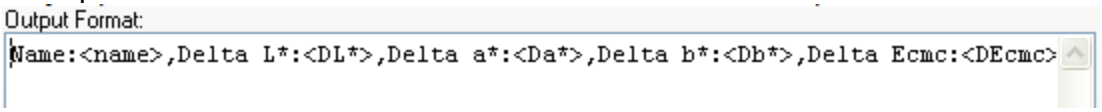


Exported:

Blue Batch 1 , -0.13 D, 0.12 R, 0.05 Y, 0.16
Blue Batch 2 , -1.21 D, 1.93 R, -0.31 B, 2.18
Blue Batch 3 , 0.23 L, -0.19 G, -0.05 B, 0.25

The above export will include the trial name, the DL*, Da*, Db*, DEcmc and return to the beginning of the next line for the next trial output. Commas were added to have a delimited file for easy import into Excel.

Example 3

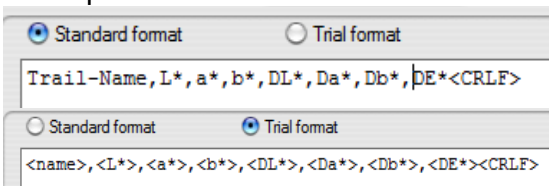


Exported:

Name:Blue Batch 1 ,Delta L*: -0.13 D,Delta a*: 0.12 R,Delta b*: 0.05 Y,Delta Ecmc: 0.16
Name:Blue Batch 2 ,Delta L*: -1.21 D,Delta a*: 1.93 R,Delta b*: -0.31 B,Delta Ecmc: 2.18
Name:Blue Batch 3 ,Delta L*: 0.23 L,Delta a*: -0.19 G,Delta b*: -0.05 B,Delta Ecmc: 0.25

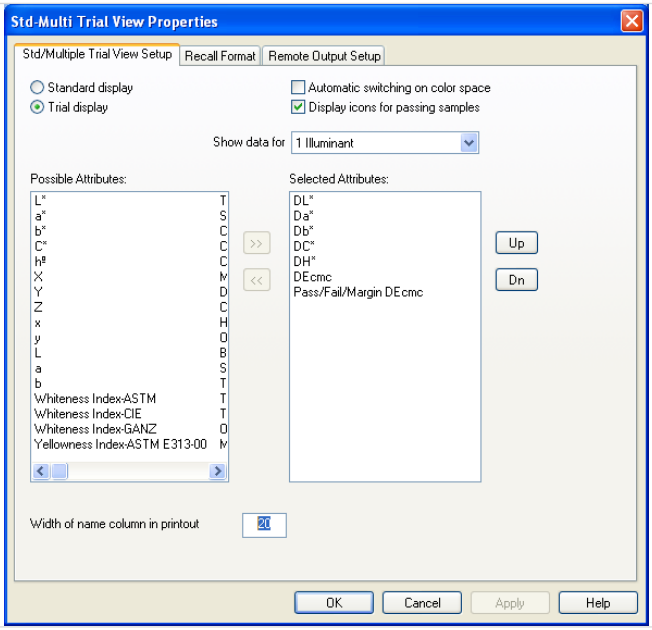
The following will export the name of the trail, the DL*, Da*, Db*, DEcmc and return to the beginning of the next line for the next trial output. Commas were added to have a delimited file for easy import into Excel. And text was added to describe the output.

Example 4



Trial-Name, L*,a*,b*,DL*,Da*,Db*,DE*
Bone 1.5D , 85.23 , -0.79 , 4.38 , -1.29 D, -0.44 G, -0.20 B, 1.37
Bone 1.5L, 87.95 , -0.08 , 4.87 , 1.43 L, 0.27 R, 0.29 Y, 1.49

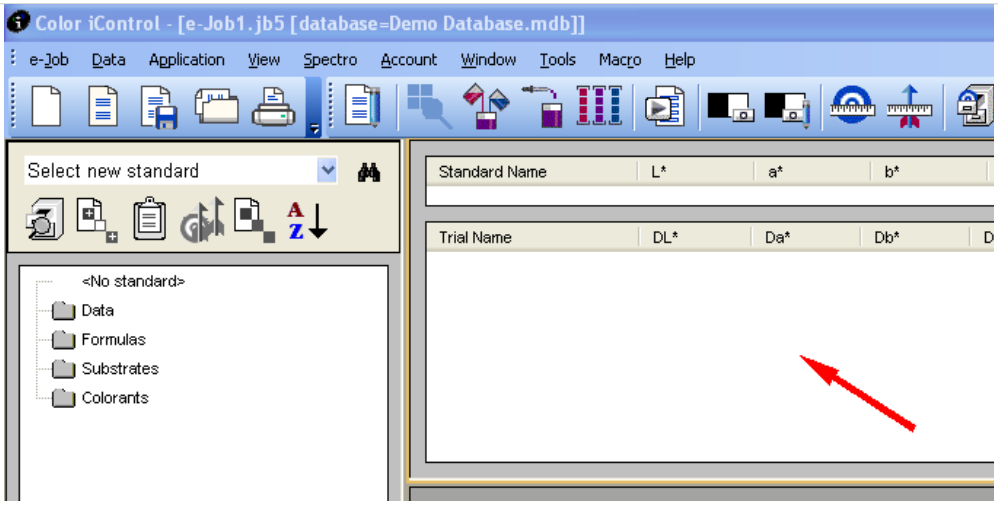
In this example a header has been added (instead of the standard name) and comma separated information have been provided



Attention:
The name of standards and trials can be up to 55 characters in length. The software defaults to exporting only the first 20 characters. If needed you can increase this to the maximum of 55 by going to the settings of the Standard Multi-Trial view and on the setup tab you can change the Width of name column on Printout.

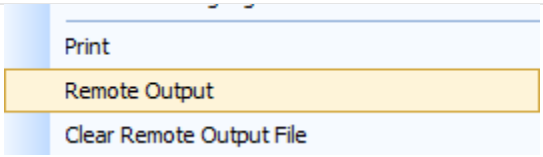
The remote output setup is saved with the e-Job or settings file.

How to utilize a Remote Output in Color iQC?



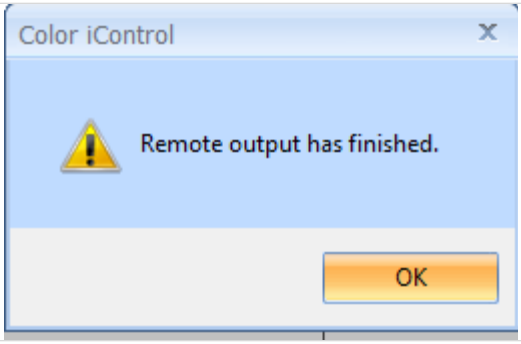
Remote Output is started from the Standard Muli-Trial view in QC.

Right Click



Select Remote Output

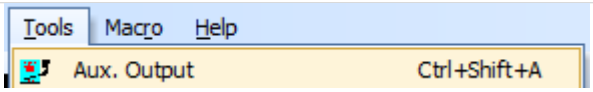
The data of all trials in the view will be exported



You will receive a message that Remote Output has been finished.

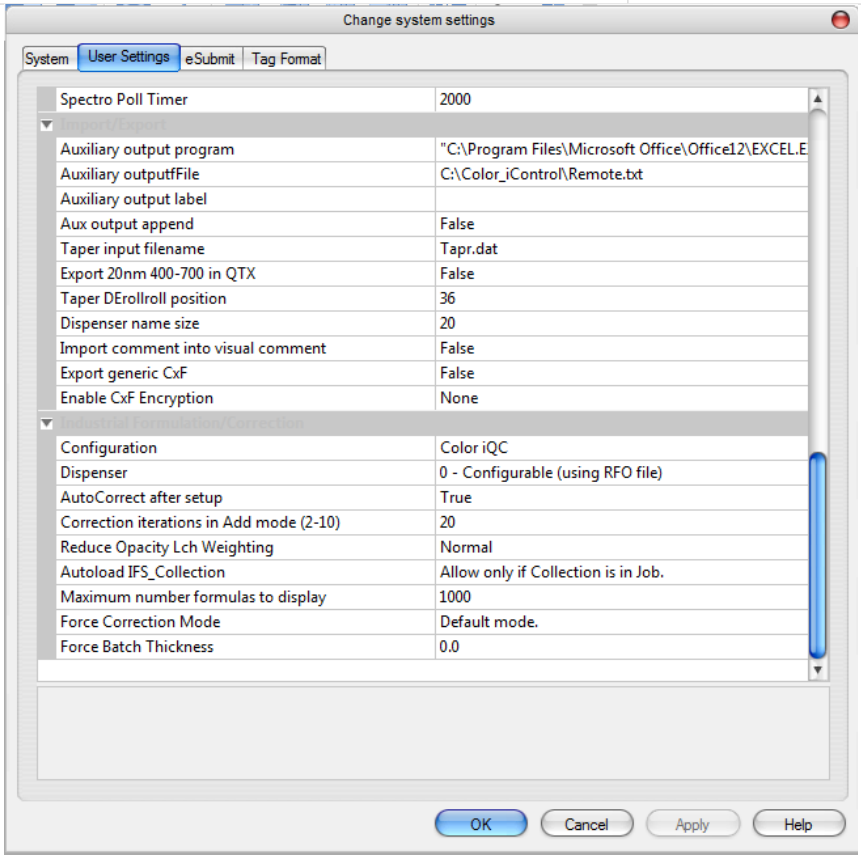
How to export from Color iQC directly into an Excel Application?

Another way to export is to use the Aux Output feature. Under the Tools menu is Aux. Output. This stands for Auxiliary output. It will use the remote output setup defined in the Standard Multi-Trial view but you have the option of having a separate file name and location along with a launching program. You can also customize your toolbar and add the Aux. Output button to make this a one click feature.



Within the Menu item Tools – there is the function

Aux. Output. It will use the remote output as it is defined in the Standard Multi-Trial view. You combine this with an automatic action – f.e. has Excel started automatically with the data provided.



In order to prepare the Aux.Output and combine with an application – you will have to change the system Settings. (No – Job opened – press [F2])

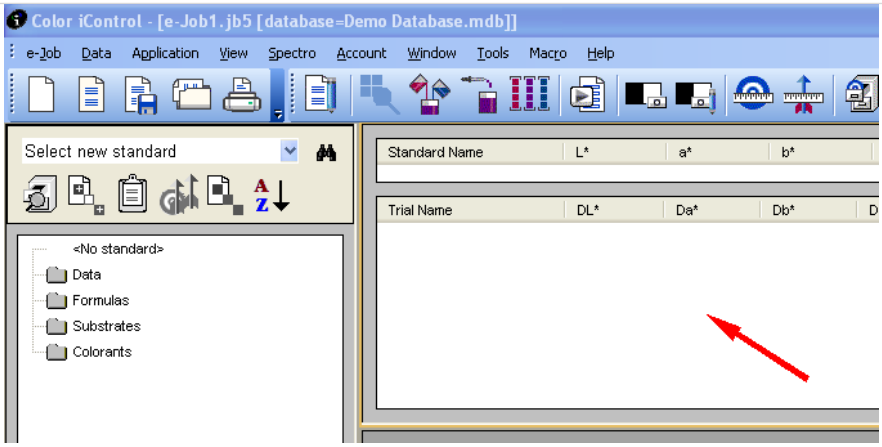
Go to the Tab “User Settings”

Go to the item Auxiliary Output Program and enter the path of the application program “C:\Program Files\Microsoft…\.EXE”

Attention: It is important to have the path it in quotes.

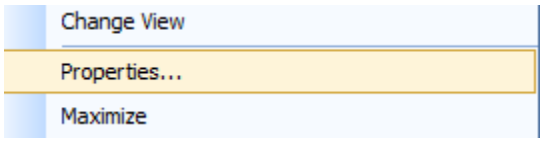
Go to the item Auxiliary output file and enter the name which corresponds to the Remote Output file.

Press [Apply]
Press [Ok]

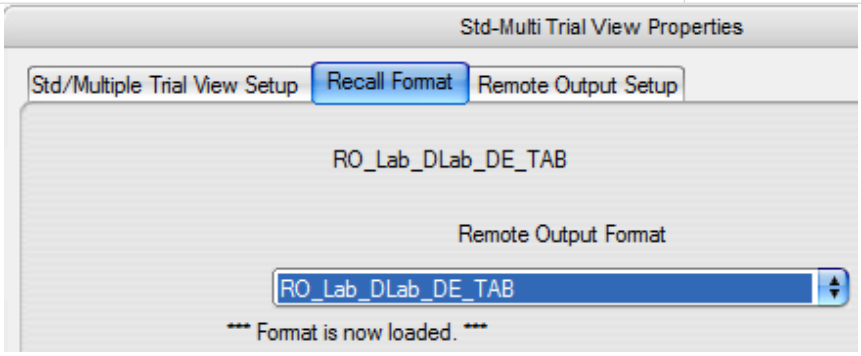


Activate the Remote Output with the correct Remote Output File

Right mouse key into the Multi Trial Data View

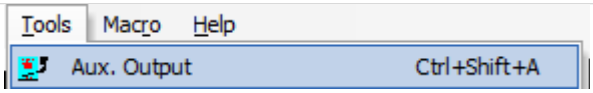


Select Properties

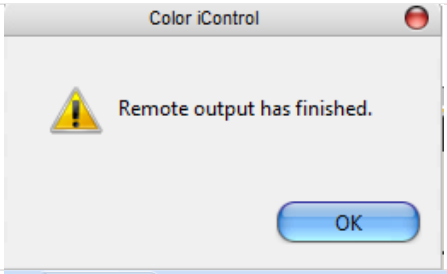


Within the properties select the desired Remote Output Format

In this case the RO_LAB_DLab_DE with tabbed separation has been selected, with the output file C:\Color_icontro\Remote.txt has been selected

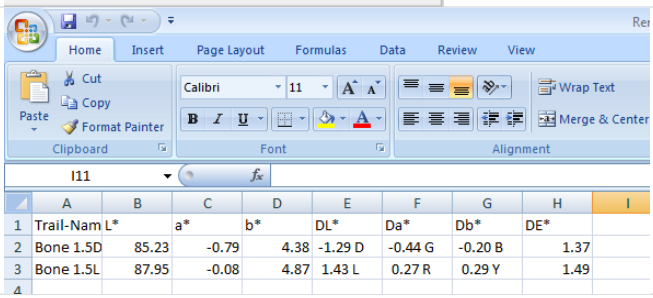


In the iQC application the Aux. Output has been selected



Directly the message comes up, that Remote output has finished

Press [OK] to continue



Directly the excel program starts up to with the content of the Remote Text – File

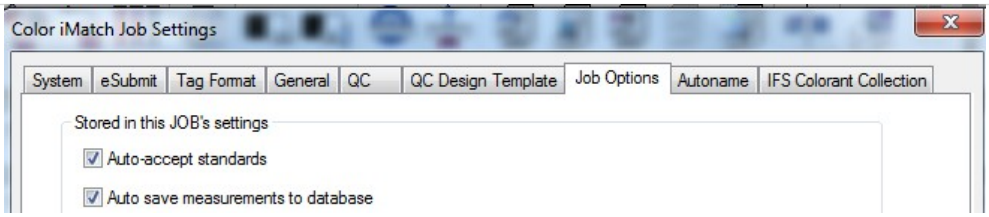
Attention: There is only one Aux. Output Program – but it can work with different jobs. Since each job can have its own Remote-Output-Format (ROF) – to refer to at the same standard Remote output file (f.e. REMOTE.TEXT) – this tool can be used for different exports.

Data Import

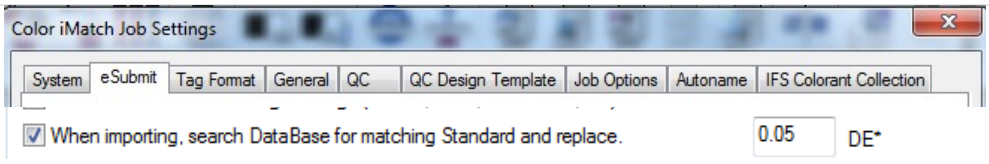
Semi-Automatic QTX-Data-Import

For some our customers it is important to automatically import data from a customer or supplier. If f.e. data are retrieved by mail they will (after double click on the data file) automatically find their way into the iQC-software.

The behavior of the qtx-import and the settings within the job will be controlled by a QTX.JT5 – Job-Template file. The QTX.JT5 can be created/modified in the known way.



If the data should be stored in the database upon closing, the option “Auto save” should be selected.



To avoid multiple standards with the same name this option should be selected

```
[STANDARD_DATA 0]
STD_NAME=H64850136,
STD_GUID=
STD_DATETIME=1152031721,
STD_REFLPOINTS=38,
STD_REFLINTERVAL=10,
STD_REFLLOW=360,
STD_VIEWING=%R LAV SCI UV CAL,
STD_R=5.11,5.96,7.43,10.14,13.04,14.33,15.11,16.17
[BATCH_DATA 0]
STD_NAME=H64850136,
BAT_NAME=100182382-D.36/596-Fi-Pr-(M)-3
BAT_GUID=
BAT_DATETIME=1322711781,
BAT_REFLPOINTS=38,
BAT_REFLINTERVAL=10,
BAT_REFLLOW=360,
BAT_VIEWING=%R LAV SCI UV CAL,
BAT_R=5.50,6.34,7.90,10.61,13.29,14.50,15.15,16.16
[BATCH_DATA 1]
```

It is important, that both the Standard_ Data and the Batch_Data are defined in the Data.QTX-file.

If only BATCH_DATA defined (even with the STD_Name=Standard is available it will not be saved correctly into the database