
Innovatint version 3

Characterizing in Innovatint Lab

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1. Characterizing bases in existing database with same bootstrap components or with already characterized other black/white colorants

Normally when a database is send out by Chromaflo Technologies it will hold characterized colorants and standard Chromaflo Technologies bases. The mixtures used to characterize these components are not visible anymore, but the K/S values can be used.

In some occasions the database will also hold all the mixtures that have been used to perform the characterization. These should not be altered as they have been checked on accuracy.

When starting to build a database starting from a standard Chromaflo Technologies database you will see that the bootstrap components are set for a Chromaflo Technologies standard product and base.

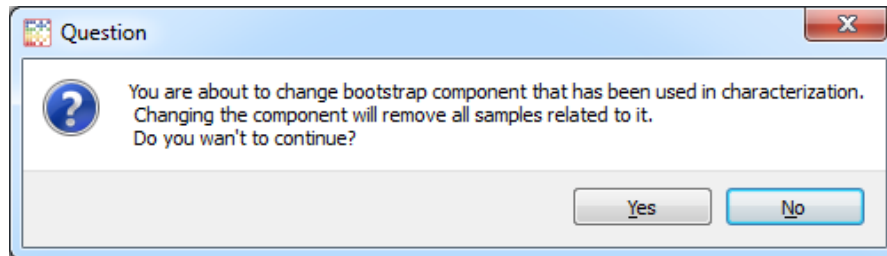
The screenshot displays the 'Innovatint - LAB' software interface (version 3.0.4.1) running on a local host. The left sidebar contains a 'System Selection' menu with options like 'Monicolor 2401', 'System overview', 'Configuration', 'Zones', 'Matching & Characterization', 'Matching rules', 'Matching', 'Color correction', 'Reference formulas', 'Fill RGB(s)', 'Management & Analysis', and 'Options'. The main window is titled 'Characterization-set: WATERBORNE' and includes buttons for 'New Set', 'Edit Set', and 'Delete Set'. Below this, there are tabs for 'Components in set' (Colorants, Bases) and a search bar. A table lists components: Bases, Colorants, and Hardeners, with checkboxes for 'Use in set'. At the bottom, a red-bordered box highlights the 'Characterize:' section, which includes dropdowns for 'White characterizer' (set to 'KU'), 'Black characterizer' (set to 'XS'), and 'Base characterizer' (set to 'INNOVATINT - C'). It also features a 'Substrate' dropdown (set to 'INNOVATINT CPS substrate'), 'Reflection' settings (Internal: 60,00 %, External: Use <= 3,96 %, 3,50 %), and 'Reset' and 'Save' buttons.



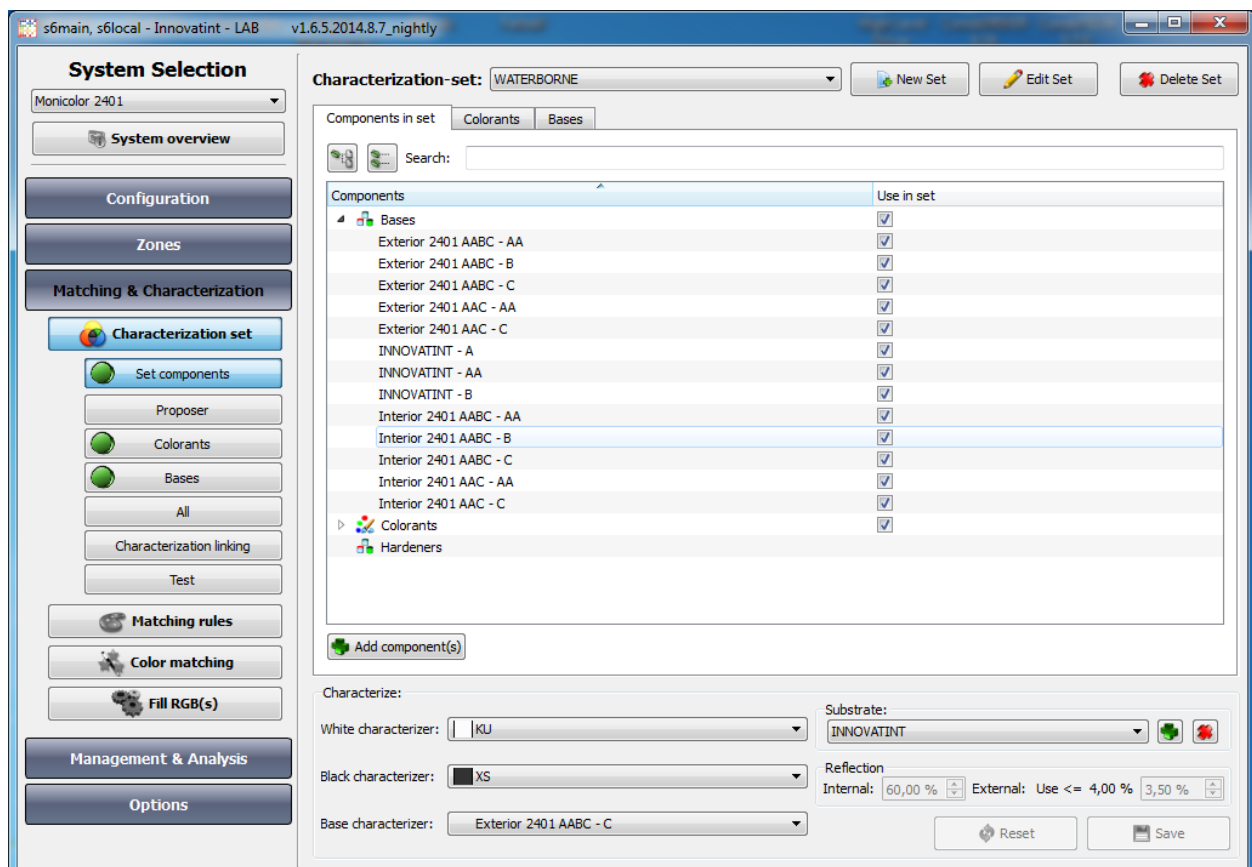
CHARACTERIZING IN INNOVATINT LAB

As you probably will not be using that combination of product and base it is logical that you delete the product out of the system. This is not a problem as the product and the base characterization are not linked to each other. The characterized components will remain in the database even when they are removed in the products holding them.

When you would remove the base characterizer component from the set or you change it to another component you would get a message:



When clicking “Yes” the “Base characterizer” will be empty or change to the new selected component. Also, when you would de-select the component and it is not present anymore in any products it will also disappear from the components list.





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As a consequence of deleting the component used for the characterization all mixtures using that component are deleted. The K/S values will still be there and can be used for matching, but you cannot change anything anymore in the mixtures as they are taken out.

The screenshot displays the 'Innovatint - LAB' software interface, version 3.0.4.1, running on a local host. The interface is divided into several sections:

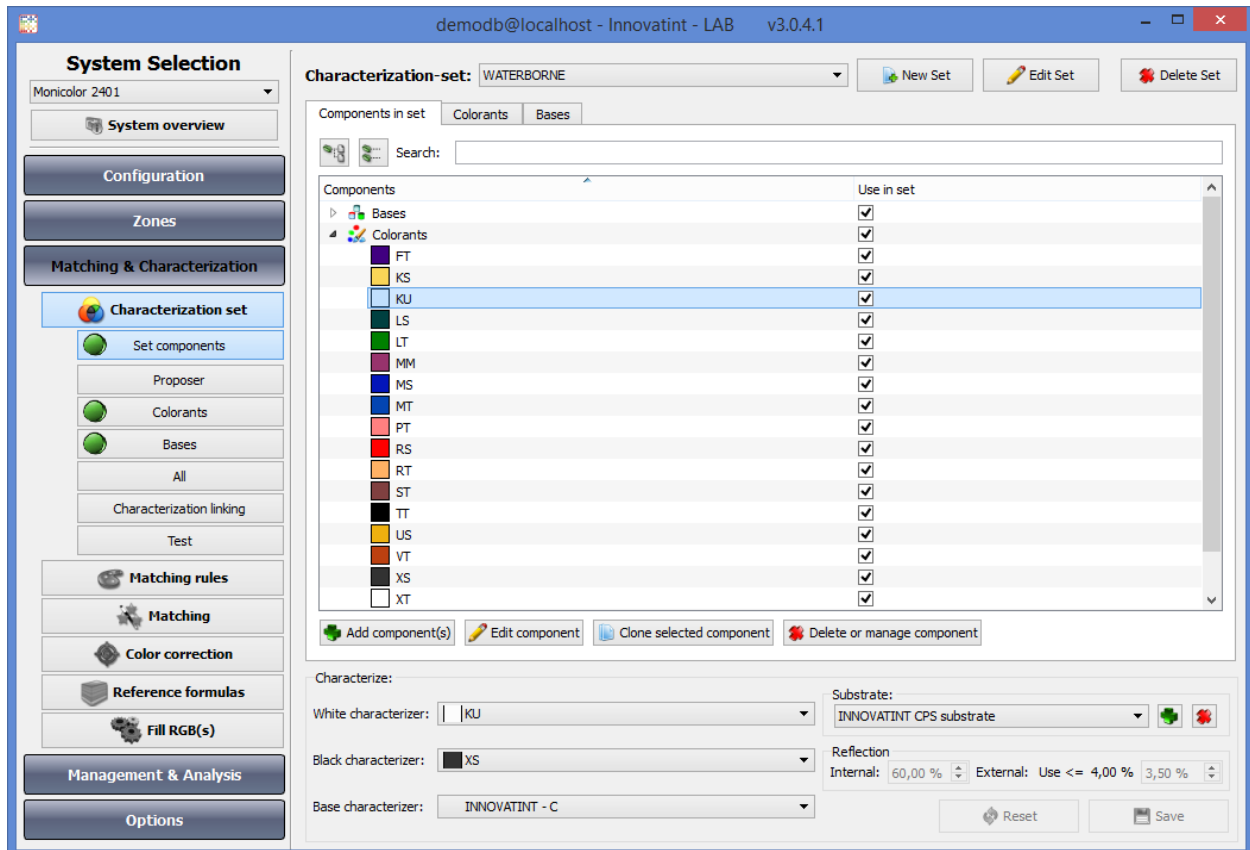
- System Selection:** Includes a dropdown for 'Monicolor 2401', a 'System overview' button, and a 'Configuration' button.
- Characterization set:** This section is currently active. It shows a 'Characterization-set' dropdown set to 'WATERBORNE'. Below this, there are buttons for 'New Set', 'Edit Set', and 'Delete Set'. The 'Status' section displays a grid of colorant and base components, each with a status indicator (green for active, red for inactive). The 'Colorant' section shows 'KS' selected. The 'White' section shows 'KU' selected. The 'Black' section shows 'XS' selected. The 'Base' section shows 'C' selected. Below these, there are input fields for 'True specific gravity' with values: 1,28 kg/l, 1,92 kg/l, 1,45 kg/l, and 1,21 kg/l.
- Mixtures:** A table with columns 'Sample name', 'In use', and 'Measured'. Below the table are buttons for 'Add mixture', 'Export', 'Delete mixture', 'Save', and 'Calculate KS'.
- Wet film thickness and Mixture volume:** Input fields for these parameters, with a 'Measure' button.
- Used spectro - measure date:** An input field for the date.

The same thing applies when changing the “White characterizer” or “Black characterizer”. Probably you will need to do this as the characterization of Chromaflo Technologies is always done with the same colorants and bases, some of which are not in the colorant system you are using.

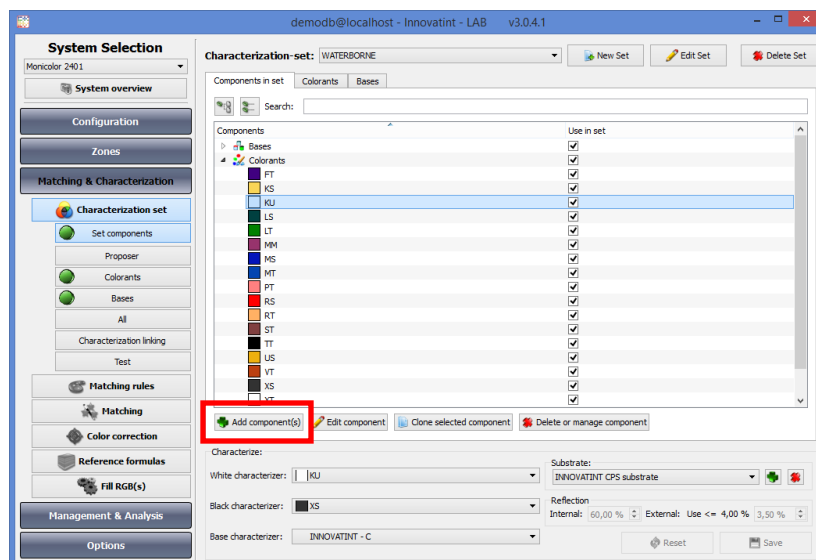
NOTE: when changing a white or black bootstrap component you will see in the “Colorants” section the colorants from the original bootstrap components also coming up. You can delete them from the set by de-selecting them.



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When the selection of the characterization components is correct you can start characterizing the new bases. When you have made a new product/base you still need to add them into the set. Do this by clicking on “Add component(s)”.





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A new screen will come up:

The dialog box 'Add characterization component(s)' has two tabs: 'New component' and 'Existing components'. The 'New component' tab is active. It contains the following fields and controls:

- Component type:** Three radio buttons: ☒ Colorant, ☐ Base, ☐ Hardener.
- Name:** A text input field with a red error message below it: 'Component name too short'.
- Code:** A text input field.
- RGB:** A large text area with a small '...' button to its right.
- Buttons:** 'Ok' and 'Cancel' buttons at the bottom right.

As mentioned before the components in a set do not necessarily be in a product or colorant system. It is possible to add a new component directly without actually using it in the rest of the database. Normally you would use a component that actually has been configured already. For this click on “Existing components”. Here you will see an overview of non-characterized components that are already used in the database.

The dialog box 'Add characterization component(s)' has two tabs: 'New component' and 'Existing components'. The 'Existing components' tab is active. It contains the following elements:

- Search:** A text input field.
- System / Components:** A tree view showing the hierarchy of components. The 'C' component is selected.
- Use in:** A column of checkboxes next to the component names.
- Buttons:** 'Ok' and 'Cancel' buttons at the bottom right.

System / Components	Use in
> <Not in any system>	<input type="checkbox"/>
Monicolor 2401	<input checked="" type="checkbox"/>
Colorants	
Products	<input checked="" type="checkbox"/>
Exterior 2401 AABC	<input type="checkbox"/>
Interior 2401 AAC Blended	<input type="checkbox"/>
NEW PRODUCT	<input checked="" type="checkbox"/>
AA	<input type="checkbox"/>
B	<input type="checkbox"/>
C	<input checked="" type="checkbox"/>



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Select the components you want to characterize and click “OK”. It will now appear in the big list:

The screenshot shows the 'System Selection' panel on the left with 'Monicolor 2401' selected. The 'Characterization-set' panel on the right is titled 'WATERBORNE'. It shows a list of components in a table:

Components	Use in set
Bases	<input checked="" type="checkbox"/>
INNOVATINT - AA	<input checked="" type="checkbox"/>
INNOVATINT - B	<input checked="" type="checkbox"/>
INNOVATINT - C	<input checked="" type="checkbox"/>
NEW PRODUCT - C	<input checked="" type="checkbox"/>
Colorants	<input checked="" type="checkbox"/>
Hardeners	<input checked="" type="checkbox"/>

Below the table, there are buttons: 'Add component(s)', 'Edit component', 'Clone selected component', and 'Delete or manage component'. At the bottom, there are fields for 'White characterizer' (KU), 'Black characterizer' (XS), 'Base characterizer' (INNOVATINT - C), 'Substrate' (INNOVATINT CPS substrate), and 'Reflection' (Internal: 60,00 %, External: Use <= 4,00 %, 3,50 %). There are also 'Reset' and 'Save' buttons.

But of course it has not been characterized yet. First set the specific gravity of the real components you are going to characterize (so the S.G. as specified on the pot).

The screenshot shows the 'System Selection' panel on the left with 'Monicolor 2401' selected. The 'Characterization-set' panel on the right is titled 'WATERBORNE'. It shows a table of liquid codes and specific gravities:

Liquid name	Liquid code	True specific gravity (kg/l)
INNOVATINT - AA	AA	1,23
INNOVATINT - B	B	1,19
INNOVATINT - C	C	1,21
NEW PRODUCT - C	C	1,21

Below the table, there are buttons: 'Add component(s)', 'Edit component', 'Clone selected component', and 'Delete or manage component'. At the bottom, there are fields for 'White characterizer' (KU), 'Black characterizer' (XS), 'Base characterizer' (INNOVATINT - C), 'Substrate' (INNOVATINT CPS substrate), and 'Reflection' (Internal: 60,00 %, External: Use <= 4,00 %, 3,50 %). There are also 'Reset' and 'Save' buttons.



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In the “Proposer” set which components you want to create mixtures for. In this case it would be only the new base. **When you would select a component that already has been characterized the program will suggest new mixtures which will result in the loss of K/S data of that component!**

Very important is that you select the correct template for the mixtures you are going to create as they follow a set of mixtures tested by Chromaflo Technologies. When a template is missing or not suitable for your needs you can also skip this part and add the mixtures manually in the “Bases” section by selecting the component you are going to characterize.

demodb@localhost - Innovatint - LAB v3.0.4.1

System Selection
Monicolor 2401
System overview
Configuration
Zones
Matching & Characterization
Characterization set
Set components
Proposer
Colorants
Bases
All
Characterization linking
Test
Matching rules
Matching
Color correction
Reference formulas
Fill RGB(s)
Management & Analysis
Options

Characterization-set: WATERBORNE [New Set] [Edit Set] [Delete Set]

Mixture creation settings
Edit component amounts
Minimum amount: 0,15 ml
Default wet film thickness: 250 µm
☐ Create bootstrap mixtures
☐ Create colorant mixtures
☐ Create base mixtures
Mixture can sizes:
Can size In use
0.1 l ☒
0.125 l ☐
0.15 l ☐
0.2 l ☐
0.25 l ☐
0.3 l ☐
Clear selections
Add Del

Needed component amount for characterization

Code	In use	Mixture template	Proposed amount (ml)	Amount (ml)
INNOVATINT - C (Bootstrap)	<input type="checkbox"/>		0	0
KU (Bootstrap)	<input type="checkbox"/>		0	0
XS (Bootstrap)	<input type="checkbox"/>		55,27	55,27
FT	<input type="checkbox"/>		0	0
KS	<input type="checkbox"/>		0	0
LS	<input type="checkbox"/>		0	0
LT	<input type="checkbox"/>		0	0
MM	<input type="checkbox"/>		0	0
MS	<input type="checkbox"/>		0	0
MT	<input type="checkbox"/>		0	0
PT	<input type="checkbox"/>		0	0
RS	<input type="checkbox"/>		0	0
RT	<input type="checkbox"/>		0	0
ST	<input type="checkbox"/>		0	0
TT	<input type="checkbox"/>		0	0
US	<input type="checkbox"/>		0	0
VT	<input type="checkbox"/>		0	0
XT	<input type="checkbox"/>		0	0
ZT	<input type="checkbox"/>		0	0
INNOVATINT - AA	<input type="checkbox"/>		873,15	675,15
INNOVATINT - B	<input type="checkbox"/>		772,39	673,39
NEW PRODUCT - C	<input checked="" type="checkbox"/>	Clear bases	0	0

Propose mixtures [Reset] [Save]

Now you can start characterizing the new component(s).



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demodb@localhost - Innovatint - LAB v3.0.4.1

System Selection

Monicolor 2401

System overview

Configuration

Zones

Matching & Characterization

Characterization set

Set components

Proposer

Colorants

Bases

All

Characterization linking

Test

Matching rules

Matching

Color correction

Reference formulas

Fill RGB(s)

Management & Analysis

Options

Characterization-set: WATERBORNE

New Set Edit Set Delete Set

Base characterization Sample Results KS analysis

Status

NEW PRODUCT - C INNOVATINT - AA INNOVATINT - B

Component: NEW PRODUCT - C White: KU Black: XS

True specific gravity: 1,21 kg/l 1,92 kg/l 1,45 kg/l

☐ Clear base KS Modifier:

	Sample name	In use	Measured
1	C 100,00%	<input type="checkbox"/>	No
2	C 90,00% KU 10,00%	<input type="checkbox"/>	No
3	C 95,00% KU 5,00%	<input type="checkbox"/>	No
4	C 97,00% XS 3,00%	<input type="checkbox"/>	No
5	C 98,50% XS 1,50%	<input type="checkbox"/>	No
6	C 99,50% XS 0,50%	<input type="checkbox"/>	No

Change mixture size

0.1

Current mixture All mixtures

Wet film thickness: μm

Mixture volume:

Measure

Used spectro - measure date:

Add mixture Export Delete mixture Save Calculate KS



2. Characterizing bases in existing database but other bootstrap components

It could happen that for the characterization of new bases you would like to use a different black and white colorant as bootstrap components which are not characterized yet. Also, as you don't have the standard Chromaflo Technologies clear base, making a new bootstrap is not possible. To solve this, the following steps should be followed.

NOTE: to get the best quality for the characterization it is preferred to use the bootstrap components that were also used for the original characterization. Ask Chromaflo Technologies for the possibilities!

First add the colorants you need to add to your database. This can be done in the “Colorants” section. You can of course also skip this and only add the new components in the characterization set without actually using them in the database. See the previous chapter for this.

The screenshot displays the 'Colorants' section of the Innovatint LAB software. The interface includes a sidebar with navigation options: System Selection, Configuration, Colorants (selected), Can sizes, Substrates, Units, Products, Color management, Zones, Matching & Characterization, Management & Analysis, and Options. The main area shows a table of colorants with columns for Colorant, RGB, SG (kg/l), VOC (g/l), BFS grade, Description, and Use in system. The 'WHITE' colorant is highlighted. Below the table are buttons for 'Add row' and 'Delete row(s)'. The 'System top-off colorant' is set to 'XT'. On the right, there is a section for 'Selected colorant can sizes' with a list of can sizes and checkboxes for 'In use'. Below this is a section for 'Can barcodes' with a text input field and a 'Reset' button.

Colorant	RGB	SG (kg/l)	VOC (g/l)	BFS grade	Description	Use in system
WHITE	...	1	<input checked="" type="checkbox"/>
FT	...	1,33	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
KS	...	1,28	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
LS	...	1,37	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
LT	...	1,4	0	1	...	<input checked="" type="checkbox"/>
MM	...	1,12	0	1	...	<input checked="" type="checkbox"/>
MS	...	1,38	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
MT	...	1,36	0	1	...	<input checked="" type="checkbox"/>
PT	...	1,22	0	1	...	<input checked="" type="checkbox"/>
RS	...	1,31	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
RT	...	1,82	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
ST	...	1,66	0	1	...	<input checked="" type="checkbox"/>
TT	...	1,29	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
US	...	1,24	0	1	...	<input checked="" type="checkbox"/>
VT	...	1,85	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
XT	...	2,09	0	1	Alternate 9 colorant	<input checked="" type="checkbox"/>
ZT	...	1,293	0	1	...	<input checked="" type="checkbox"/>
AA	...	1	<input type="checkbox"/>

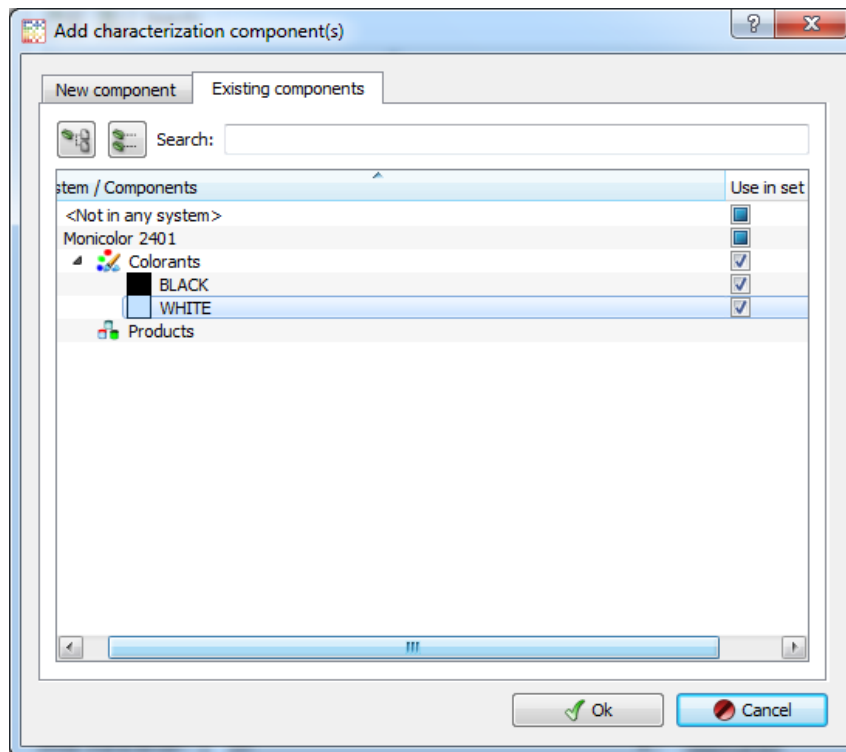
Also add the new products and bases to your system or just as components as explained in the previous chapter.



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After this go to the “Set components” section and add the colorants and bases to your characterization set (only needed when not done directly yet). To be able to make a new bootstrap always a clear base has to be used so make sure that at least that is added.

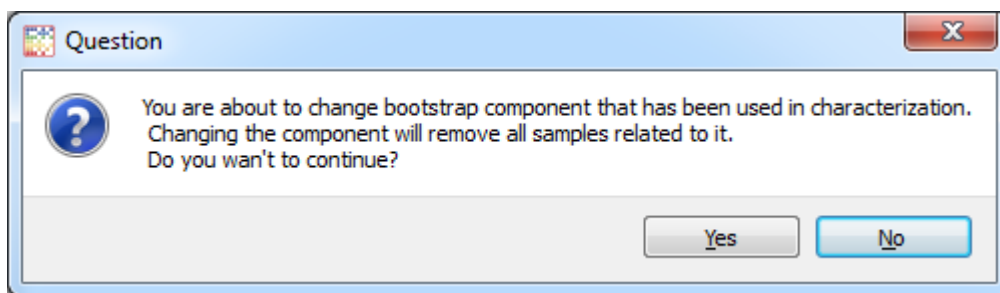
You can add the components by clicking on the “Add component(s)” button and selecting the new components from here.





CHARACTERIZING IN INNOVATINT LAB

When you have configured your components you also have to change the bootstrap components. Change them to follow your new base (or when you have the Chromaflo Technologies clear base you don't change it) and set the new black and white colorant. It will give you a warning about removing bootstrap components but in this case it can be ignored. Click “Yes” and continue the work. However, when the original database still had the mixtures for the original components you will lose those as they are based on the first bootstrap. Please keep this in mind. The K/S values will still be there and suitable to be used for matching.



Set the densities for the new components.

The screenshot shows the 'System Selection' window of the Innovatint LAB software. The 'Characterization set' is set to 'WATERBORNE'. The 'Components in set' tab is active, displaying a table of liquid components with their codes, types, and true specific gravities.

Liquid name	Liquid code	Liquid type	True specific gravity (kg/l)
FT	FT	Dark	1,39
KS	KS	Light	1,28
KU	KU	White	1,92
LS	LS	Dark	1,37
LT	LT	Dark	1,41
MM	MM	Light	1,08
MS	MS	Dark	1,38
MT	MT	Dark	1,4
PT	PT	Light	1,29
RS	RS	Light	1,31
RT	RT	Light	1,83
ST	ST	Light	1,66
TT	TT	Black	1,38
US	US	Light	1,27
VT	VT	Light	1,82
WHITE	WHITE		2,1
XS	XS	Black	1,45
XT	XT	White	2,1
ZT	ZT	Light	1,3

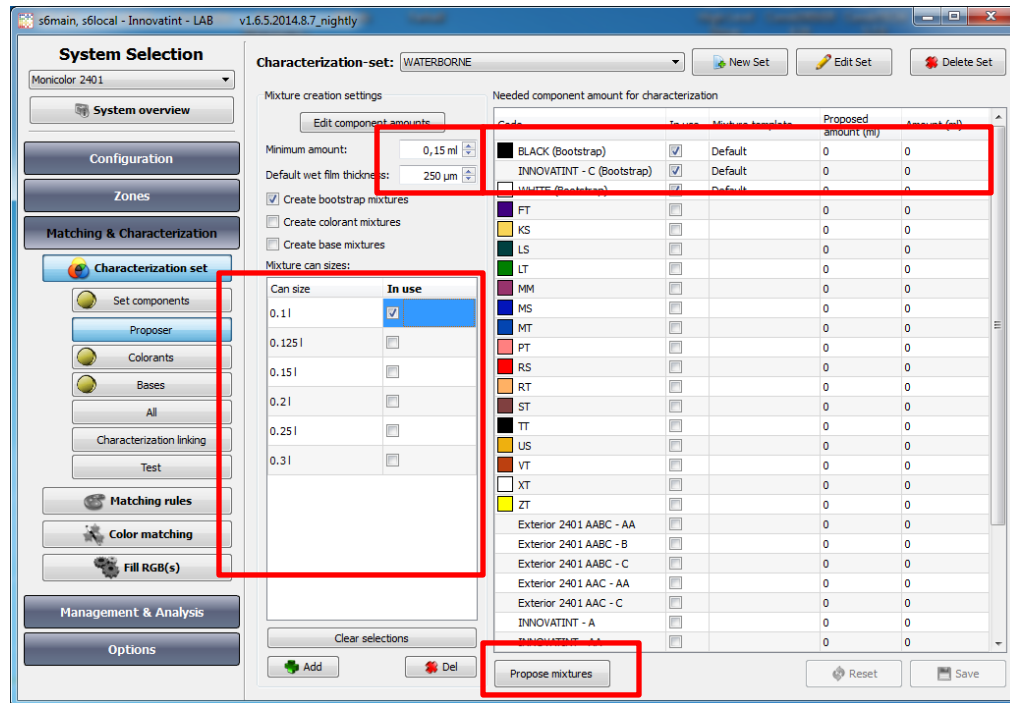
Below the table, the 'Characterize' section shows the 'White characterizer' set to 'KU', the 'Black characterizer' set to 'XS', and the 'Base characterizer' set to 'INNOVATINT - C'. The 'Substrate' is set to 'INNOVATINT CPS substrate'. The 'Reflection' section shows 'Internal' at 60,00 % and 'External' at Use <= 4,00 % (3,50 %). The 'Reset' and 'Save' buttons are visible at the bottom right.



CHARACTERIZING IN INNOVATINT LAB

Now go to the “Proposer”. In the “Proposer” set which components you want to create mixtures for. In this case it would be only the new base. **When you would select a component that already has been characterized the program will suggest new mixtures which will result in the loss of K/S data of that component!**

In this case you need to make a new bootstrap so select this.



Propose the mixtures.

When you go to the “Colorants” section you will see that the bootstrap is showing mixtures based on the black and white colorant + base. The warning light is green as it still has the K/S values from the old bootstrap. When starting the measure the new mixtures and calculate the K/S values you will overwrite the old bootstrap. The colorants that have been characterized with the old bootstrap will still be green as the K/S values are still in the database. Same goes for the already characterized bases. Only the new bases would show red and will ask you for mixtures. The others stay green.



CHARACTERIZING IN INNOVATINT LAB

s6main, s6local - Innovatint - LAB v1.6.5.2014.8.7_nightly

System Selection
Monicolor 2401
System overview
Configuration
Zones
Matching & Characterization
Characterization set
Set components
Proposer
Colorants
Bases
All
Characterization linking
Test
Matching rules
Color matching
Fill RGB(s)
Management & Analysis
Options

Characterization-set: WATERBORNE
New Set Edit Set Delete Set

Colorant characterization Sample results KS analysis

Status
<Bootstrap> FT LT MT RT US ZT KS MM PT ST VT LS MS RS TT XT

Colorant: <Bootstrap> White: WHITE Black: BLACK Base: C
True specific gravity: kg/l 2,00 kg/l 2,00 kg/l 1,21 kg/l

Mixtures

Sample name	In use	Measured
1 C 100,00%	<input type="checkbox"/>	No
2 C 90,00% WHITE 10,00%	<input checked="" type="checkbox"/>	No
3 C 90,00% BLACK 0,15% WHITE 9,85%	<input type="checkbox"/>	No
4 C 90,00% BLACK 0,30% WHITE 9,70%	<input type="checkbox"/>	No
5 C 90,00% BLACK 0,62% WHITE 9,38%	<input type="checkbox"/>	No
6 C 90,00% BLACK 1,25% WHITE 8,75%	<input type="checkbox"/>	No
7 C 90,00% BLACK 10,00%	<input type="checkbox"/>	No
8 C 90,00% BLACK 5,00% WHITE 5,00%	<input type="checkbox"/>	No

Change mixture size: 0,1 l
Current mixture: All mixtures
Wet film thickness: 250 µm
Mixture volume: 0 ml
Measure

Code	Proposed amount (g)	Actual amount (g)
C	108,9	
WHITE	20	
BLACK		

Used spectro - measure date:

Add mixture Export Delete mixture Save Calculate KS

Finish the characterization of the new bootstrap components and after this you are ready to also characterize other bases as described in the previous chapter.



3. Characterizing colorants in existing database with or without different bootstrap components

Characterizing colorants in an existing database can be done immediately when using the same bootstrap components as the original database. When there is another black, white or product/ base combination a new bootstrap has to be made first.

Going from scenario 1 where the components of the original bootstrap are used (so same white and black base + Chromaflo Technologies standard clear base) the addition of a new colorant only means adding the colorant in the “Configuration” section, add it in the “Set components” and make mixtures with the “Proposer”.

When scenario 2 is in place where at least 1 of the bootstrap components is replaced you have two options:

1. When the new bootstrap components that have to be replaced have already been characterized you can change it directly in the “Set components” section. As described in the previous chapters it will give you a warning about it and you will lose all mixtures from components made with the original bootstrap. The K/S values will be lost. When you have replaced the needed components you can move forward as described in scenario 1.
2. When the new bootstrap components have not been characterized you have to make the new bootstrap first. How to do this is explained in the previous section. After you have finished this you can add new colorants with the new bootstrap component(s).



4. Start from scratch

This is the easiest way to work but also it gives you the most work. To start from scratch the database has to be build-up, the components have to be set, the bootstrap has to be made and all other components have to be characterized.

To do this configure your database and make a complete new characterization set. This will make everything new and gives you the opportunity to start with an empty characterization set.