

Add a new Color Setup

Color > Color Setup

Availability: All Versions

In order to exploit the full potential of your Durst Printer and the Workflow, it is essential that the Workflow can recognise and render precise color properties from the Printer to the Substrate.

Within the Workflow we use the term **Profiling** to describe how the Workflow deciphers color information in relationship between the Substrate and reflected light.

In this article you will learn:

- Which **requirements** must be met in order to create an accurate Profile
- How to **create a Profile**
- Why using **Pre-Linearization** makes sense
- Which methods are provided for **Editing an existing** Profile.

1. General Overview

In order to successfully create a Color Setup for a Substrate in the Workflow, the following **requirements** must be met:

- **Inks** must be created for the appropriate Printer
- The **Printer** and the correct Print Configurations must be created
- **Substrates** must be created for the Printer

When all requirements have been met, you can start Profiling. To perform a complete Color Setup for all Channel Configurations for the Printer, proceed as follows:

1. Select the **Color > Color Setup** menu item
2. Create a new Color Setup by clicking on the **+New** button in the action bar. Decide whether or not your Color Setup needs *Pre-Linearization*. Ask yourself the following question, "*Which color configuration is required?*".
3. Open the Color Setup by double-clicking it. Depending on the selected Color Configuration and whether Pre-Linearization is needed, the Color Setup will perform up to five steps. If Pre-Linearization is not necessary and the Printer does not have any Light Inks, the Color Setup can be carried out in just three steps.

4. Click on Step 1: **Pre-Linearization** and enter the desired Correction value in the **Create Pre-Linearization Curves** sub-step.
5. Click on Step 2: **Transitions**. The Transition step contains four sub-steps:
 - **Print**
 - **Measure**
 - **Analyze**
 - **Create Transition Curves**
6. Click on Step 3: **Linearization**. The Linearization step contains four sub-steps:
 - **Print**
 - **Measure**
 - **Analyze**
 - **Create Linearization Curves**
7. Click on Step 4: **Ink Limit**. The Ink Limit step contains two substeps:
 - **Print**
 - **Determine ink Limit**
8. Click on Step 5: **Profile**. The Profile step contains four sub-steps:
 - **Print**
 - **Measure**
 - **Analyze**
 - **Calculate Substrate Profiles**
9. After Profile calculation is complete, go back to **Color > Color Setup** to the Color Setup list view.
10. Select the Color Setup you just created. If the you have created a CMYK-OVG profile, you can select **Create CMYK-only Color Setup** from the **action bar**, where a CMYK only Profile can be automatically calculated from your previous Profile measurements.
11. If you intend to create prints with black only, you can also select **Create a Greyscale Color Setup** from the **action bar**.
12. In our example, three profiles are available: CMYK-OVG, CMYK and K.
13. The last step is to select a Default Profile for the selected Substrate. To do this, go to **Administration > Substrate** and select the Substrate you used for profiling. Under the **Substrate** panel, select a *Default Color Policy* for the Substrate.

The steps that must be completed after creating a new Color Setup are available [here](#) as well as [here](#).



Which Color Configuration should I choose first?

Even if you don't plan on using them, **please Profile your printer using all the inks available to your printer** (this includes **gamma expanding** and **light inks**), as sub-profiles can then be created at a later point in time without re-profiling.

2. Create a new Color Setup

Once the Ink, Printer and Substrate have been prepared, the first step is to create a Profile for the Printer, Ink and Substrate combination. Proceed as follows to Profile a **CMYKcm** Color Configuration with Pre-Linearization:

1. Select **Color > Color Setup**
2. When opening Color Setup for the first time, you will find an empty list. If a Profile has already been created, you can select a Profile and **edit** [2], **duplicate** [3] or **delete** it [4]. In our case we will create a **New** [1] Profile.

Figure 1: Created *Profiles* are listed in the *Color Setup* list.

The screenshot shows the 'Color Setup' interface with a table of profiles. Red numbers 1-4 indicate key actions: 1. New, 2. Edit, 3. Duplicate, 4. Delete.

Name	Comment	Description	Tags	Created	Modified
Tau 330 Tau STD Ink HD PTB Dig UV Inkjet MC80 FSC (AW343) HD CMYKOV		Tau 330 CMYKOV HD PTB Dig UV Inkjet MC80 FSC (AW343) HD	OK to Use	16/12/2017 22:00:18	13/11/2018 12:58:15 Harald
Tau 330 Tau STD Ink HD HHR Avery PE85 Top Clear HD CMYK	2016.10.19	Delta SPC 130 CMYK HD HHR Avery PE85 Top Clear HD	Color Setup MM	18/10/2016 12:50:19 admin	27/11/2018 08:48:27 Michi
Tau330 LFS (Brinen) Tau STD Ink SD Avery PE85 Top White CMYK	IL250	Tau330 LFS (Brinen) CMYK SD Avery PE85 Top White	Set Tag	27/10/2016 14:33:48 admin	11/10/2018 10:46:30 Michi
Tau 330 STD Tau STD Ink HD HHR Avery PE85 Top White HD CMYKOV	2017.07.20	Tau 330 CMYKOV HD HHR Avery PE85 Top White HD	Color Setup MM	20/07/2017 14:02:51 admin	24/04/2018 16:07:24 Johanna
Tau 330 STD Tau STD Ink SD HHR Avery PE85 Top Clear CMYKOV	2017.04.26	Tau 330 CMYKOV SD HHR Avery PE85 Top Clear	Color Setup MM	05/10/2017 11:15:15 admin	24/04/2018 16:18:34 Johanna
Tau 330 STD Tau STD Ink SD PTB Dig UV Inkjet MC80 FSC (AW343) HD CMYKOV		Tau 330 CMYKOV SD PTB Dig UV Inkjet MC80 FSC (AW343) HD	OK to Use	31/12/2017 12:00:22 admin	24/04/2018 16:38:15 Johanna
Tau 330 RSC Tau RSC Ink 1200x1200 Avery		Tau 330 RSC CMYK-UVG	OK to Use	13/03/2018 14:54:08 admin	13/11/2018 13:49:13 Harald



Search for a Color Setup

Color Setups can be quickly displayed via the filter bar and the search field. The criteria used to filter results in this list are: *Color Channel Configuration, Print Configuration, Printer, Substrate and Tags*.

You can read about how filters work and how to narrow your search criteria via the search field in the article **Using Filters and the Search function**.

3. To create a new Color Setup, click on the **+New** button [1] in the action bar. This opens the *Add Color Setup* dialog, which contains multiple parameters pertaining to the Color Setup. The required parameters for a Color Setup include:
 - **Printer** – Printers differ, even if they are the same model, many printers will contain the following parameters:
 - **Print Configuration** – This determines the *Resolution, Passes, Print Speed, Backlit* options as well as *Finishing Type* and *Dither Mode*.
 - **Substrate** – Defined by surface texture, optical brighteners, etc.
 - **Channel Configuration** – Determines the colors used for printing, i.e. - *CMYK, CMYKcm, CMYK_OVG*, etc.

Figure 2: The *Add Color Setup* dialog

The screenshot shows the 'Add Color Setup' dialog box. It has a title bar 'Add Color Setup'. The fields and checkboxes are as follows:

- 5** Setup Name *: P10 250 HS | Rho POP Flexible Ink | High Resolution | Garda
- 6** ☒ Autogenerate Setup Name from chosen parameters
- Abbreviation: (empty text field)
- Comment: (empty text area)
- 7** Printer: P10 250 HS (9)
- 8** Print Configuration *: High Resolution (11)
- 9** Substrate *: Europapier - Garda (13)
- 10** Channel Configuration *: CMYKcm (18)
- 11** Measurement Device *: Barbieri Spectro LFP qb (auto measurement) (18) [LAN]
- Measurement Parameter Set *: Barbieri Spectro LFP qb Reflection (38)
- 12** ☒ Create Pre-Linearization Curves

At the bottom right, there are two buttons: 'Cancel' and 'Save'.

4. The option **Autogenerate Setup Name from chosen parameters** [6] is activated by default in this dialog. Leave this checkbox activated if the Profile name should be automatically generated or needs to maintain a certain hierarchal structure such as, *Printer | Ink | Print Configuration | Substrate | Channel Configuration*. However, if you want to use a different name for the Profile, deactivate the checkbox and enter the desired name for the Profile under the **Setup Name** [5] input field.
5. The next step is to select the following options:
 - **Printer** [7] – Select your desired printer. The Printer should have been previously created in the Workflow.
 - **Print Configuration** [8] – Select your desired configuration.
 - **Substrate** [9] – Select your desired Substrate.
 - **Channel Configuration** [10] – Select your desired configuration. When initially Profiling a Printer-Print Configuration-Substrate combination, you should select the Color Configuration that covers all Process and Light Inks that are available for your printer.
6. **Measurement Device** [11] and **Measurement Parameter Set**, the default Measurement Device and Configuration will be automatically assigned, as previously defined under *Administration > Measurement Devices*. If you need to use another Measurement Device or Parameter Set, please select it in this dialog.
7. Activate the checkbox **Create Pre-Linearization Curves** [12] if your Printer Type requires this option. Depending on the Printer Type used, this option can lead to improved Profiles and therefore improved Printing results and is generally recommended by us – see the [Pre-Linearization](#) section for more information.
8. After **saving** the *Add Color Setup* dialog, you will see the new Color Setup in the Color Setup list. Please note that when a Profile is created it is always displayed as the last entry in the list. Click on the last page of the list to find your new Color Setup.
9. To continue Profiling either double-click on the entry in the list or click on the arrow [13] on the far right of the list entry.

For more detailed Information on all Steps concerning [Profiling of a Color Setup](#) read the linked Article > Quick Reference.

Figure 3: The *Color Setup list* with the new Color Setup selected

Color Setup
Review, edit and create Color Setups

Set Filter | No Filter Set | Search ...

Name	Comment	Description	Tags	Created	Modified
Tau330 - E Black Tau 330 Tau330_E_SD Avery Dig UV Inkjet MC80 FSC (AW343) [HD] Tau330 - E_CMYK		Tau330 - E Tau330 - E_CMYK Avery Dig UV Inkjet MC80 FSC (AW343) [HD]	Set Tag	12/12/2018 15:11:17 admin	12/12/2018 15:14:40 admin
Tau 330 RSC TAU RSC Ink HD Herma - Herma PE Weiss TC (851) - INKLIMIT 360 CMYK OVG		Tau 330 RSC CMYK_OVG Avery PE85 Top White	Colortests HPS	22/12/2018 14:14:51 admin	22/12/2018 14:19:18 admin
Tau 330 RSC Tau HPig UV 1200 x 1200 Intercoat PP CMYK Tau 330 RSC	Profil ISOcoated_v2_eci (Puh)	Tau 330 RSC CMYK HD_JHHR Dig UV Inkjet MC80FSC	Set Tag	03/01/2019 12:12:31 admin	03/01/2019 12:14:35 admin
Tau 330 RSC Tau HPig UV 1200 x 1200 Intercoat PP CMYK Tau 330 RSC (Copy_1)	Profil ISOcoated_v2_eci (Puh)	Tau 330 RSC CMYK HD_JHHR Dig UV Inkjet MC80FSC	Set Tag	04/01/2019 10:29:20 admin	04/01/2019 10:29:22 admin
Tau 330 RSC Black_Tau RSC UV HD_JHHR Avery PE85 Top White CMYK		Tau 330 RSC CMYK HD_JHHR Avery PE85 Top White	Colortests HPS	06/01/2019 09:06:54 HPS	06/01/2019 09:07:17 HPS
Tau 330 RSC Tau RSC Ink 1200 x 1200 Herma - Herma PE Weiss TC (851) CMYK OVG LFP qb		Tau 330 RSC CMYK_OVG HD_JHHR Avery Dig UV Inkjet MC80 FSC (AW343) [HD]	Colortests HPS	13/01/2019 00:20:25 HPS	13/01/2019 00:23:37 HPS
Tau 330 RSC Tau RSC Ink 1200 x 1200 Herma - Herma PE Weiss TC (851) CMYK LFP qb		Tau 330 RSC CMYK HD_JHHR Avery Dig UV Inkjet MC80 FSC (AW343) [HD]	Colortests HPS	13/01/2019 13:05:41 HPS	13/01/2019 13:06:12 HPS
P5 250 HS Premium WG P5 High Resolution Gardamatt Art CMYKcm		P5 250 HS CMYKcm High Resolution Gardamatt Art	Set Tag	24/01/2019 09:45:12 admin	24/01/2019 09:45:12 admin

2.1. Pre-Linearization

Background Information

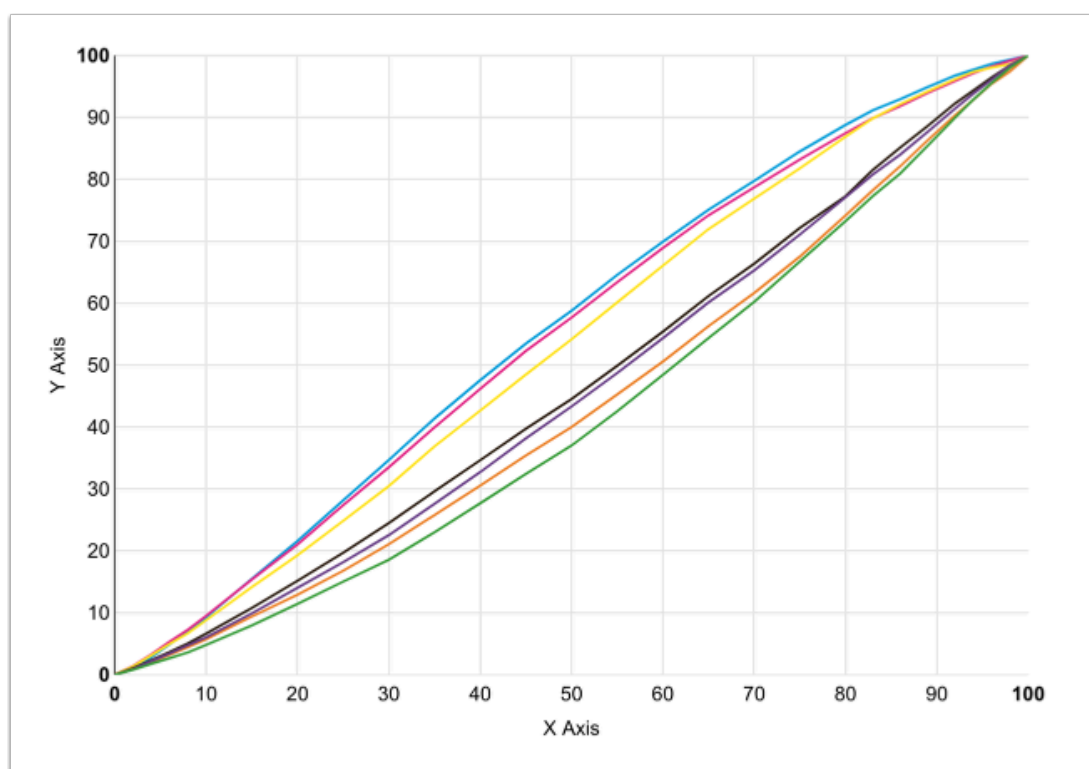
Printer manufacturers deliver their printers with different linear states. This is partially due to the fact that Print Head installation varies from Printer to Printer and may have for example different head voltages. Despite the variables listed above there are other factors that come into play regarding the linearity of a Printer when installed onsite. There are three factors that can play a major role in consistency of print results. These are:

- The use of highly pigmented inks:** With certain printers, inks with a different number of pigments are used. For example, in order to reduce ink consumption, it may be desirable to use a highly concentrated black or cyan pigment. Inks with highly concentrated pigment can lead to a sharp increase in the steepness of the Linearization curve.
- Direct Printing versus Transfer Printing:** If two printers from the same manufacturer are installed onsite, where one printer is filled with inks for Direct Printing and the other with an ink for Transfer Printing, the slope of the Linearization curve can differ considerably.
- Print Configuration:** If a Printer offers a variety of Print Configurations (e.g. different speeds), the linear behavior between the individual configurations may vary significantly due to the different amounts of ink being applied to the Substrate.

As a result, when we combine all these factors, the same printer can vary considerably when it comes to Linear performance.

Using the Tau 330 RSC printer as an example, we can see that the Linear curve with factory settings looks pretty satisfactory, we can assume that the ink combination, Printer Mode and Head Tension settings are heading in the right direction. As long as these factors do not change considerably, the printer can be regarded as having a relatively Linear curve. If this is the case, using the Pre-Linearization step would be superfluous.

Figure 4: The Linearization curve of a printer using the Tau 330 RSC as an example.



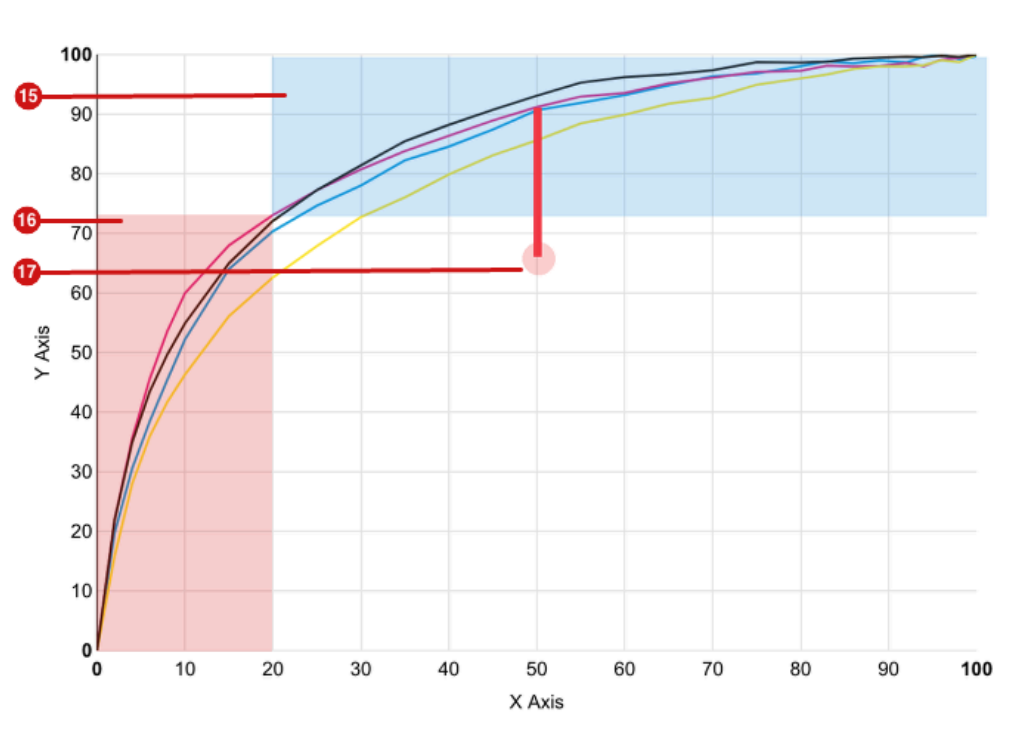
When measuring the Linearization of a printer that is already linear, the measuring fields from 0% to 100% will be significantly different from each other. This provides a good starting point for creating the compensation curve for Linearization.

If concentrated pigment inks are used or the printing process changes, the printer will often appear to be in a non-linear state. Theoretically if the linearity were to be measured, 75% of the Color spectrum [16] would already be printed in the first 0% to 20%, as seen in the figure below. For the remaining coverage (75% to 100% [15]) many color patches (20% to 100%) would need to be used.

If you suspect that a measurement value in the range from 0% to 20% [16] is not correct due to a flawed Chart, incorrect positioning of the measurement head or measurement errors in the measurement algorithm, linearity deviations from the acceptable range and steepness will appear. When the Linearization is incorrect it is relatively

easy to visually identify that the curve is incorrect and will often contain sharp aberrations as seen in the figure below.

Figure 5: A non-linear printer when measured may display a Linearization curve similar to the figure below.

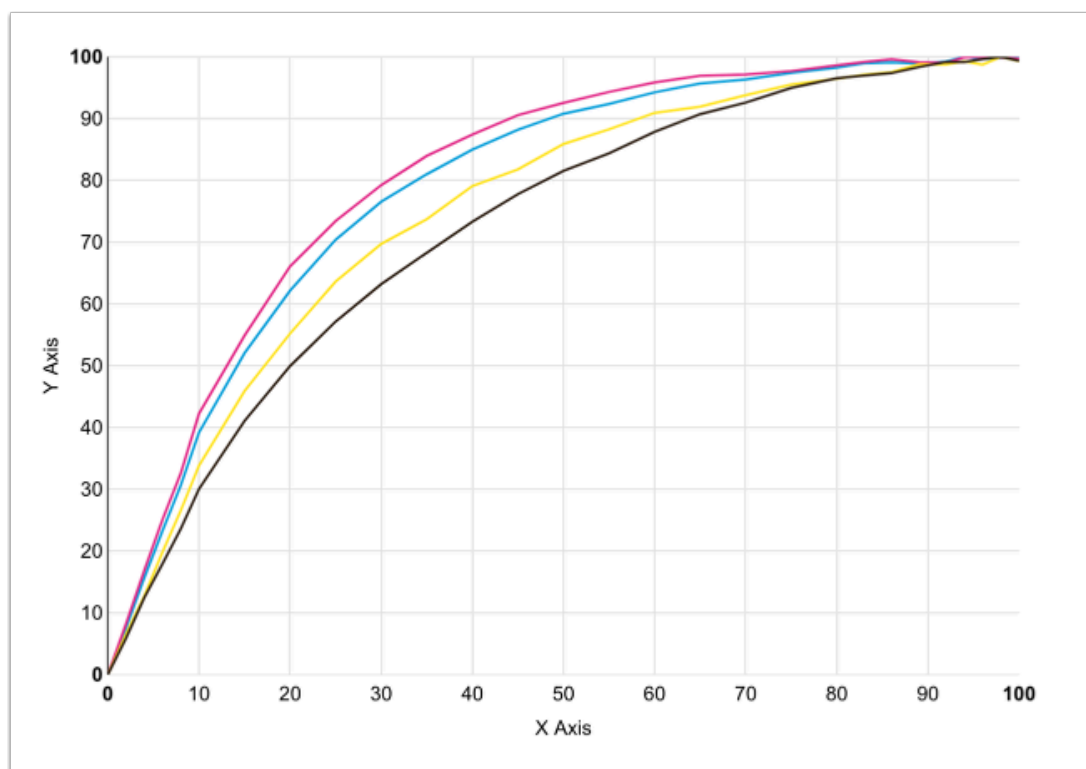


By applying Pre-Linearization, the Linearization curve can be slightly smoothed, which will significantly improve the quality of the measurement data, because the measurement is based on several measurements.

The Pre-Linearization curve is calculated based on a percentage that the user enters. As an example, a value of 20% would reduce the 50% point on the Linearization curve by 20% [17]. The appropriate value that the user should enter depends on many factors, we recommend the following:

- A value of 20% can be used for almost all Durst printers.
- For water-based inks, the percentage also depends heavily on the Print Configuration. The faster you print, the higher the percentage used.
- In transfer printing, 30% to 35% can be used.
- Reduce the Pre-Linearization value, if the Linearization curve is below the 45° line.
- We have never had to apply the maximum value of 40% to any printing system.
- The Tau RSC does not require Pre-Linearisation.

Figure 6: The Linearization curve after applying Pre-Linearization - a slightly higher percentage value would have been appropriate here.



What we can expect when applying Pre-Linearization

The following results can be achieved when applying Pre-Linearization:

- **Smoother gradients:** By distributing the measurements more evenly, the automatic smoothing of the Linearization curve is more effective.
- **A Smoother transition when using Light Inks:** If the Linearization curve has a steep increase in light tones, the calculated curve for determining the transition between Light and normal Ink will have a much sharper "peak" (maximum value). This means that the print result may contain a visible ring that can be perceived when a radial transition occurs in this area. Pre-Linearization will smooth out this curve.
- **Reduced ink consumption when using Light Inks:** The start, maximum and end values are predefined in the Workflow when calculating transitions, the end value may be set too late if the Linearization curve has a strong peak, when Linearization has been applied, Light Inks may be increased to add saturation. By adding more Light Ink we ultimately "waste" Ink, because we don't need to add Light Inks when printing deep black tones.

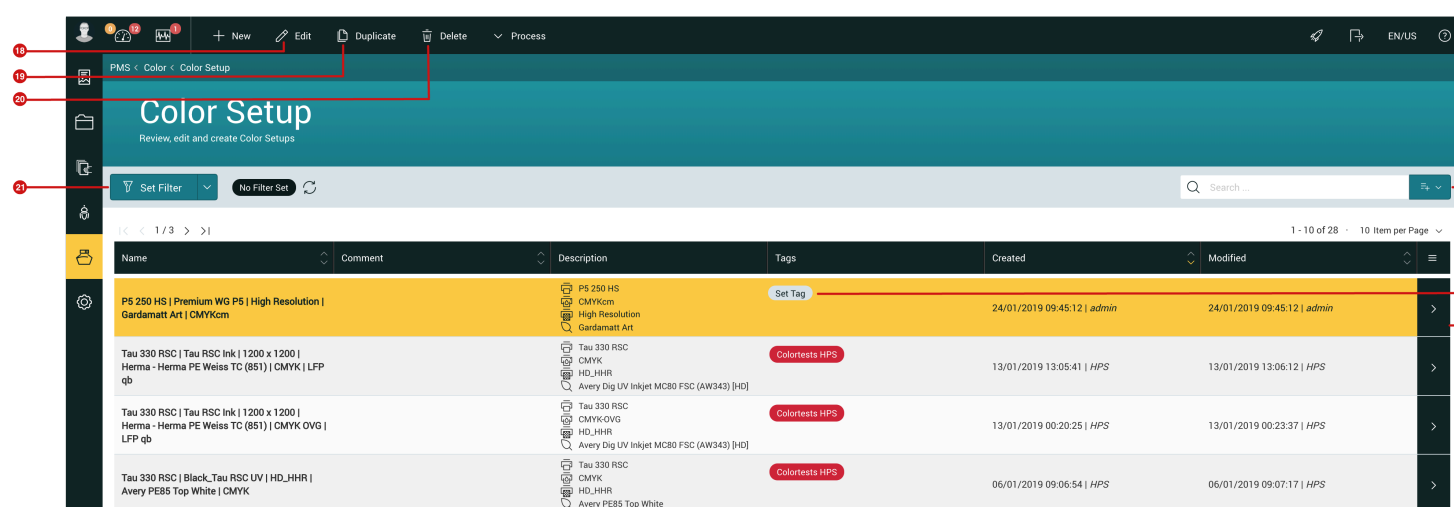
As described above automated calculations only work well if the printer is in a linear state. By ensuring the initial Linearization of a printer we can optimize the calculation as well as the application of Inks and by proxy the print results that are obtained from the printer.

3. Editing, Duplicating and Deleting Color Setups

After selecting **Color > Color Setup**, we see a list of all Color Setups that have been created. Depending on the number of printers connected to the Workflow and on the Print and Color Configurations used, the number of Profiles can increase quickly. For the sake of clarity, you can reduce your number of entries by applying a **filter** [21], by entering a term in the **Search Field** [22] or by adding a **Tag** [23]. By adding a Tag, active Profiles can be quickly separated from "obsolete" Profiles. By first applying a filter with the Tag option, the user can narrow search results by selecting the Active filter for example (Color Setups must be Tagged with the appropriate status first, i.e. Active, Inactive, etc.).

Once you have located the desired entry in the list, you can select it, the entry turns yellow when highlighted [24] and the user can then click on **Edit** [18], **Duplicate** [19] and **Delete** [20] menus in the action bar on the other.

Figure 7: In the *Color Setup* menu item, all Profiles are displayed in a list.



3.1. Edit a Color Setup

There are two main reasons why a user would Edit a Color Setup. You may (a) want to change or adapt the **Name** of the Color Setup or add additional information such as **Comments**. Another option (b) you want to change, one or more parameters contained in the Color Setup.

Changing or adapting the name of the Color Setup

To edit the name of the Color Setup or to add a comment, proceed as follows:

1. Select the desired Color Setup in the list.
2. Click on **Edit [18]** in the action bar, where the *Edit Color Setup* dialog will open.

Figure 8: The *Edit Color Setup* dialog

Edit Color Setup

25 Setup Name * RHO P10 250 HS | Premium WG P5 | High Resolution | Garda

26 ☐ Autogenerate Setup Name from chosen parameters

Abbreviation RHO_P10_250_HS_POP_HS_Art_CMYKcm

27 Comment With 20% Pre-Linearization

28 Printer P10 250 HS (9)

Print Configuration * High Resolution (11)

Substrate * Europapier - Garda (13)

Channel Configuration * CMYKcm (18)

Measurement Device * Barbieri LFP (1) [USB]

Measurement Parameter Set * Barbieri LFP (1)

× Cancel ✓ Save

3. If you want to change the name of the Color Setup, you must first deactivate the checkbox **Autogenerate Setup Name from chosen parameters [26]**. After doing so you can change the **Setup Name [25]** as required.
4. If you want to change the name automatically due to changes in parameters, activate the **Autogenerate Setup Name from chosen parameters [26]** checkbox and make any necessary changes under the parameters area **[28]**.
5. Click on Save to close the dialog.
6. After Saving you will see the following dialog, confirm these changes by pressing the **Update [29]** button. When clicking on Update, none of the measurement data will be overwritten, only the metadata will be changed.

Figure 9: The confirmation dialog that appears after making changes to a Color Setup

P5 250 HS | Premium WG P5 | High Resolution | Gardamatt Art | CMYKcm



You have changed the configuration of the Color Setup. Do you want to Update or Delete the referenced Color Setup Data? Select 'Delete' if you want to delete all Measurement Data and Color Policies from the Color Setup. Each step has to be redone after deleting. Select 'Update' if you want to update the Print Configuration and Substrate Configuration. The old Measurement Data and Color Policies will be kept after updating.

× Cancel

Delete

✓ Update

29



Adjust name for changed ink

If a new ink is used in the printer, the administrator needs to select the correct ink under **Administration > Printer** in the Color Configuration settings. When changing the ink, the name should also be changed for all Color Setups. The Color Setup name needs to also be adjusted. You can do this in two ways:

1. Click on *Edit* after selecting your desired Color Setup and overwrite the ink name in the Color Setup Name section. The *Autogenerate Setup Name from chosen parameters* checkbox must be deactivated.
2. Click on *Edit* after selecting your desired Color Setup and leave the *Autogenerate Setup Name from chosen parameters* checkbox checked. To ensure that the ink names changes, you must select another **Print Configuration** and then select your original Print Configuration. This will automatically change the Color Setup name.

If you have added new inks to the printer, the administrator will need to select the correct ink under **Administration > Printer** under *Color Configuration*. By changing the ink, the name for the Color Setup may need to be changed. If you want the ink name automatically adjusted, you would have to select it first under the Channel Configuration drop-down in the Edit Color Setup dialog. In the second step reset this print configuration to the previously set one. This change should adapt the name automatically.

Adjust a Color Setup by editing parameters

By changing parameters **[28]** (see Figure 8) in the Edit Color Setup dialog, essential parameters of the Color Setup can be changed. Changing individual parameters will invalidate the Color Setup, as it changes the parameters that are used for Profiling. In the following cases some parameters may need to be changed, it should be noted that we do not recommend making changes to these parameters:

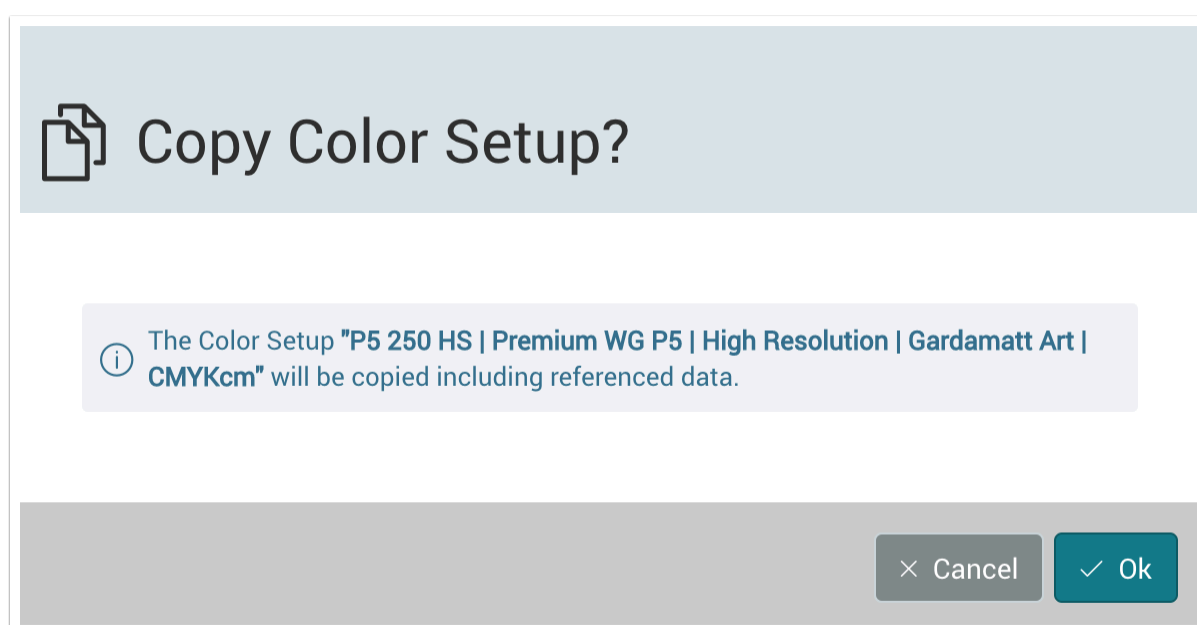
- **Using the same Color Setup for a different Substrate:** To achieve this please follow the steps in this article »[Applying a Profile to a different Substrate or Printer](#)«.
- **Using the same Color Setup for a different Printer:** To achieve this follow the steps in this article »[Applying a Profile to a different Substrate or Printer](#)«.
- **Profiling with different settings in the profiling steps:** Examples would be: A Color Setup with or without Pre-Linearization applied, a Color Setup with different transitions for Light Inks or a Color Setup with different Total Ink Coverage. This can be accomplished by reading this article »[Profiling with different settings in the profiling steps](#)«.

3.2. Duplicate a Color Setup

We recommend that the user Duplicates a Color Setup when making any changes to the print parameters listed above as this will ensure that the existing profile stays intact and provides a backup of the existing Profile as well. To duplicate a Color Setup, proceed as follows:

1. Select the desired Color Setup in the list.
2. Click on **Duplicate [19]** (Figure 7) in the action bar, the *Copy Color Setup* dialog will open.

Figure 10: The *Copy Color Setup* dialog



3. Confirm duplication by clicking on **Ok [30]**.
4. This creates a duplicate of the Color Setup which contains all measurement data and creates a new entry in the list of Color Setup at the end of the list with the designation »**Profiling name (Copy_1)**«.
5. Select the duplicated Color Setup in the list and click on **Edit [18]** (see Figure 7) in the action bar to make the necessary changes.

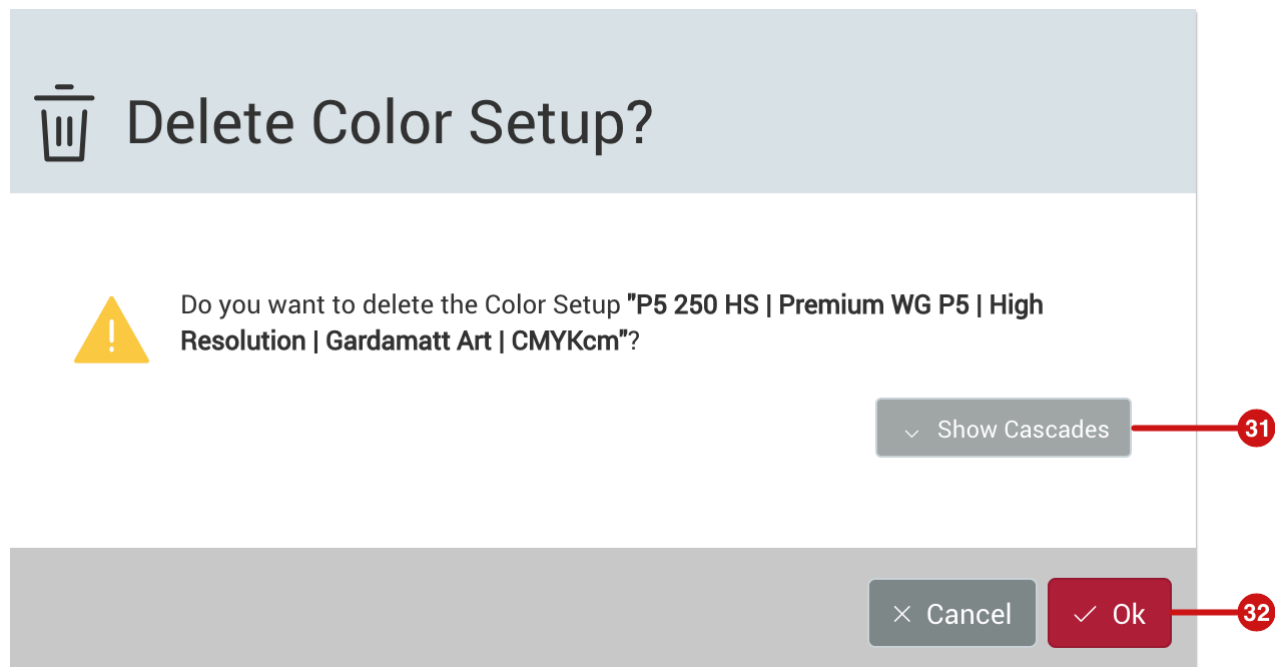
3.3. Delete a Color Setup

We also offer the possibility to remove Color Setups that are outdated or have been created by mistake. Proceed as follows:

1. Select the desired Color Setup in the list.

2. Click on **Delete [18]** (see Figure 7) in the action bar, this will open the *Delete Color Setup* dialog.

Figure 11: The *Delete Color Setup* dialog



3. If you want to see linked Orders, Articles or Jobs, you can click on **Show Cascades [31]**.
4. If you are sure that you want to delete the Color Setup, click on **Ok [32]**.
5. Depending on the amount of linked Orders, Articles or Jobs, the deletion process may take some time.