LET'S CONNECT

PRINECT
USER DAYS

WS 15 - Color communication
Color management

Prinect User Days 2025

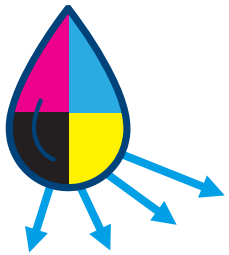
Simon Top | Print Media Center, Wiesloch Germany, Friday 17/01/2025

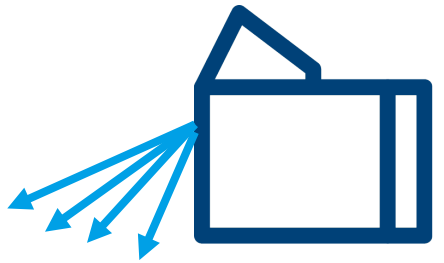
How color used to be:

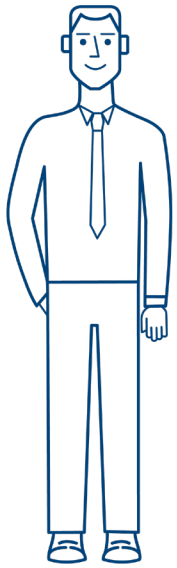
Different isolated islands in production when printing 4C (CMYK):

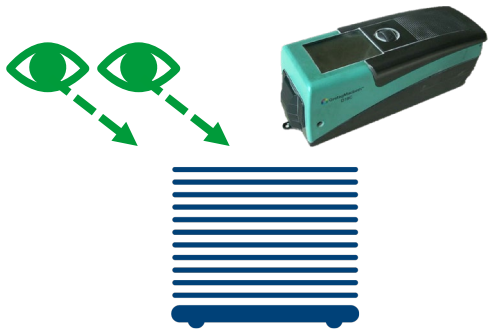
1. Prepress and printing plates
2. Printing ink
3. Printer and his expertise

Quality control: - Optical / visual – by printer
- Densitometer – measurement







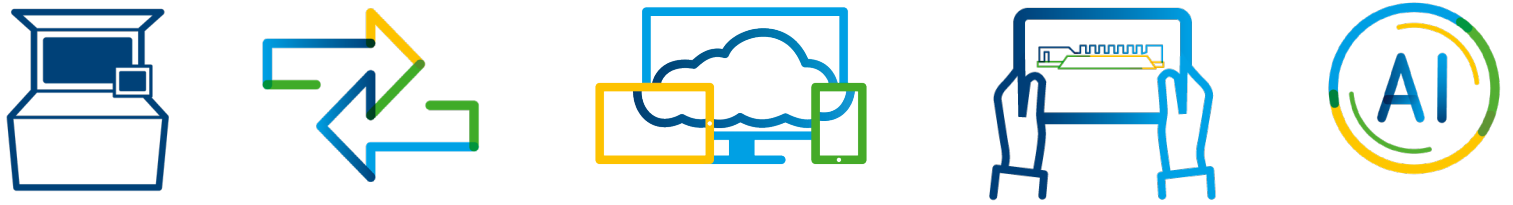


Color Today

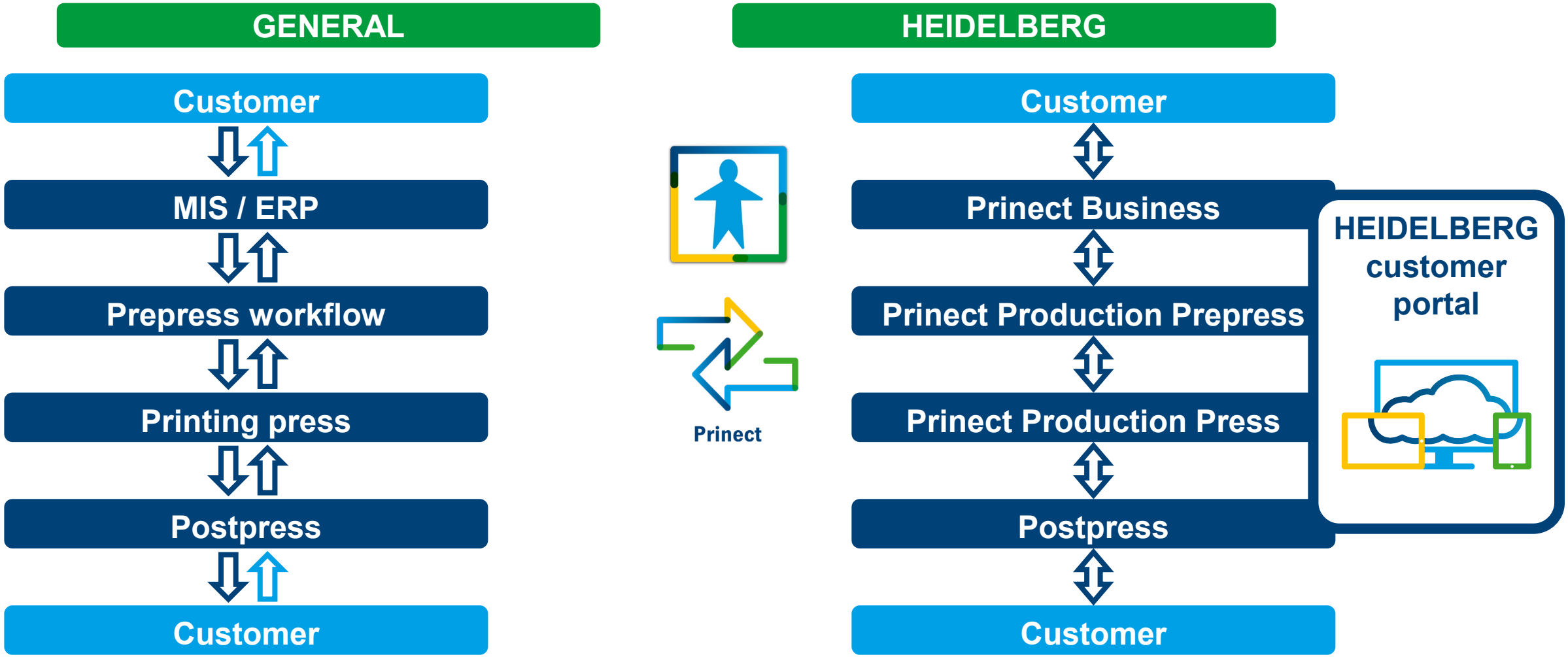
Today color is handeled in a different way because:

DIGITALIZATION

INNOVATION



Color Today


GENERAL
Customer
MIS / ERP
Prepress workflow
Printing press
Postpress
Customer
Prinect
HEIDELBERG
Customer
Prinect Business
Prinect Production Prepress
Prinect Production Press
Postpress
Customer
HEIDELBERG customer portal

Where do we have color?

Your customers want to a colorful printed product.

Based on your product mix:

Commercial

- 90% jobs
  = 4 C → 4/4
- 10% jobs contain spot colors
- Buying spot colors from ink supplier

Packaging & Label

- 80% jobs
  4C + spot
- 20% can be covered by process colors only
- Internal ink kitchen due to amount of spot colors

Digital

- Inkjet or toner
- Fixed color sets
- 4C – 6C – 7C
- Simulation of spot colors with the fixed color set.

What HEIDELBERG offers within Prinect?

Knowhow about color

Possibility to communicate color

We have to print BLUE

HEIDELBERG blue

Light blue

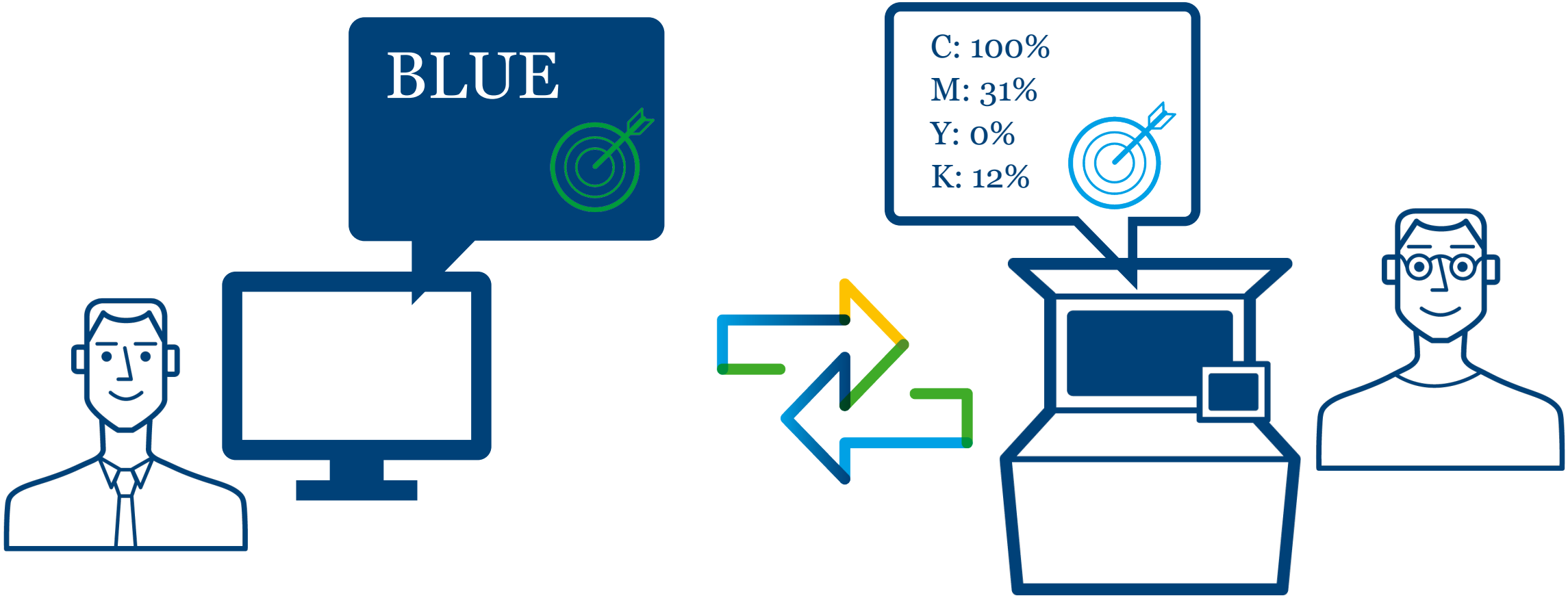
Very light blue

Dark blue

BLUE IS NOT ALWAYS THE SAME COLOR BLUE

Color communication

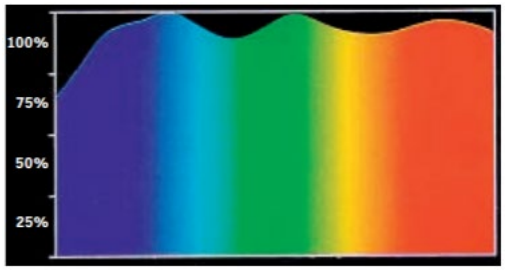
What do we need?



Standardization preventing confusion

Standardized communicating colors = use numbers.

Spectral values

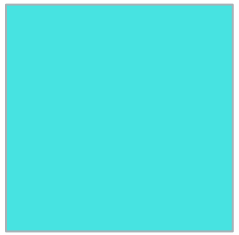


CIE Lab

L*: 87

a*: -5

b*: -63



Density

Cyan: 0,9 Dlog

(color blind)

ISO standard e.g. ISO 12647-2 = for CMYK
+ dot gain
+ overprinting of colors

Standardized for **spot colors**:
- Pantone® libraries
- HKS libraries

Standards can be adjusted according to production conditions.
E.g. Coated vs. Uncoated paper → different target densities, adjusted Lab-value.

The M-values

ISO 13655-2017:Spectral measurement and colorimetric computation for graphic arts images

Includes?

- Standardized lighting conditions
- Substrates with optical brighteners

	Standard „old “	Standard „current “		
Definition	**M0**	**M1**	**M2**	**M3**
Mode	**„A“**	**„D50“**	**„UV-Cut“**	**„Polfilter“**
Light source	gas-filled tungsten bulb (today mostly LED)	mostly LED	mostly LED	mostly LED
Color temperature	**ca. 2850 K**	**5000 K**	**undefined**	**undefined**
Spectral range	380 nm until min. 700 nm	Excitation 300 nm Measurement: 380 nm until 700 nm	Measurement: 420 nm until min. 700 nm	Measurement: from max. 420 nm until min. 700 nm
Light type / Observer (CIE-normed color system 1931)	**D50 / 2°**	**D50 / 2°**	**D50 / 2°**	**D50 / 2°**
Measurement geometries (45°:0° or 0°:45°)	**X**	**X**	**X**	**X**
relative / absolute	**absolute**	**absolute**	**absolute**	**absolute**
Polarized measurement	**-**	**-**	**-**	**X**
UV-Cut filter (UV content turned off/suppressed)	**-**	**-**	**X**	**X**

Live Demo Color library

- **General overview:**
  - User interface
  - Includes Pantone v5

- **Interactive**
  - Import of a CxF file
  - Creation new color through measurement of color target.
  - Automation during job preparation at the press.

Live Demo Color library

User Interface / Overview

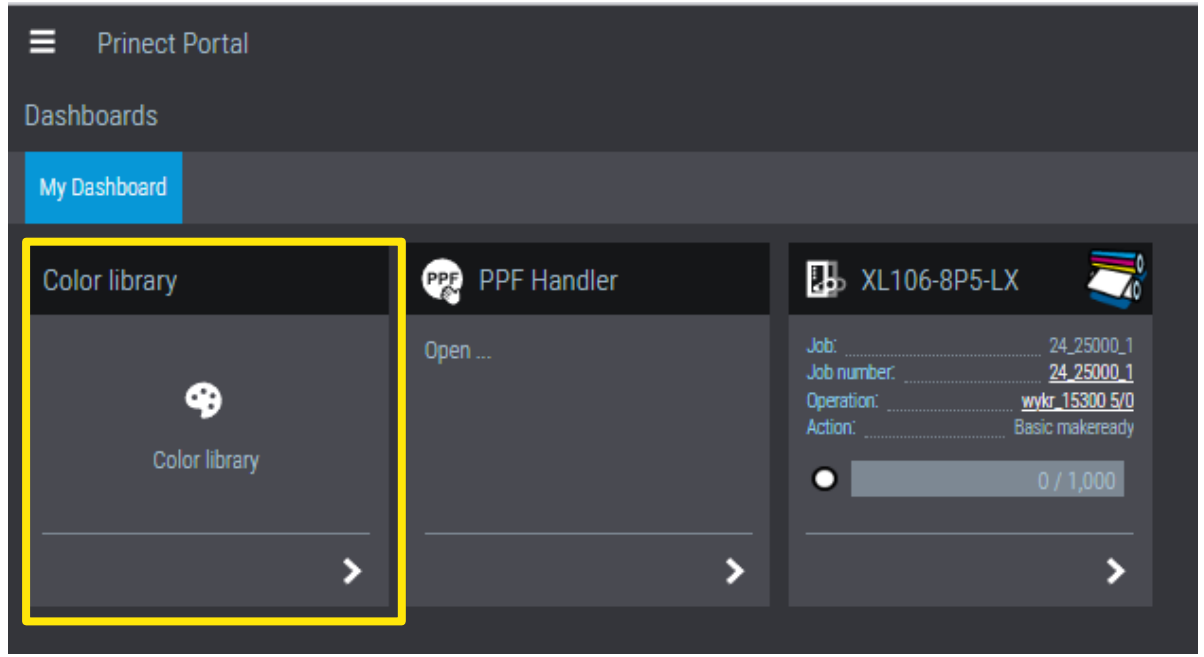
Color library

Prinect Color Library
Login

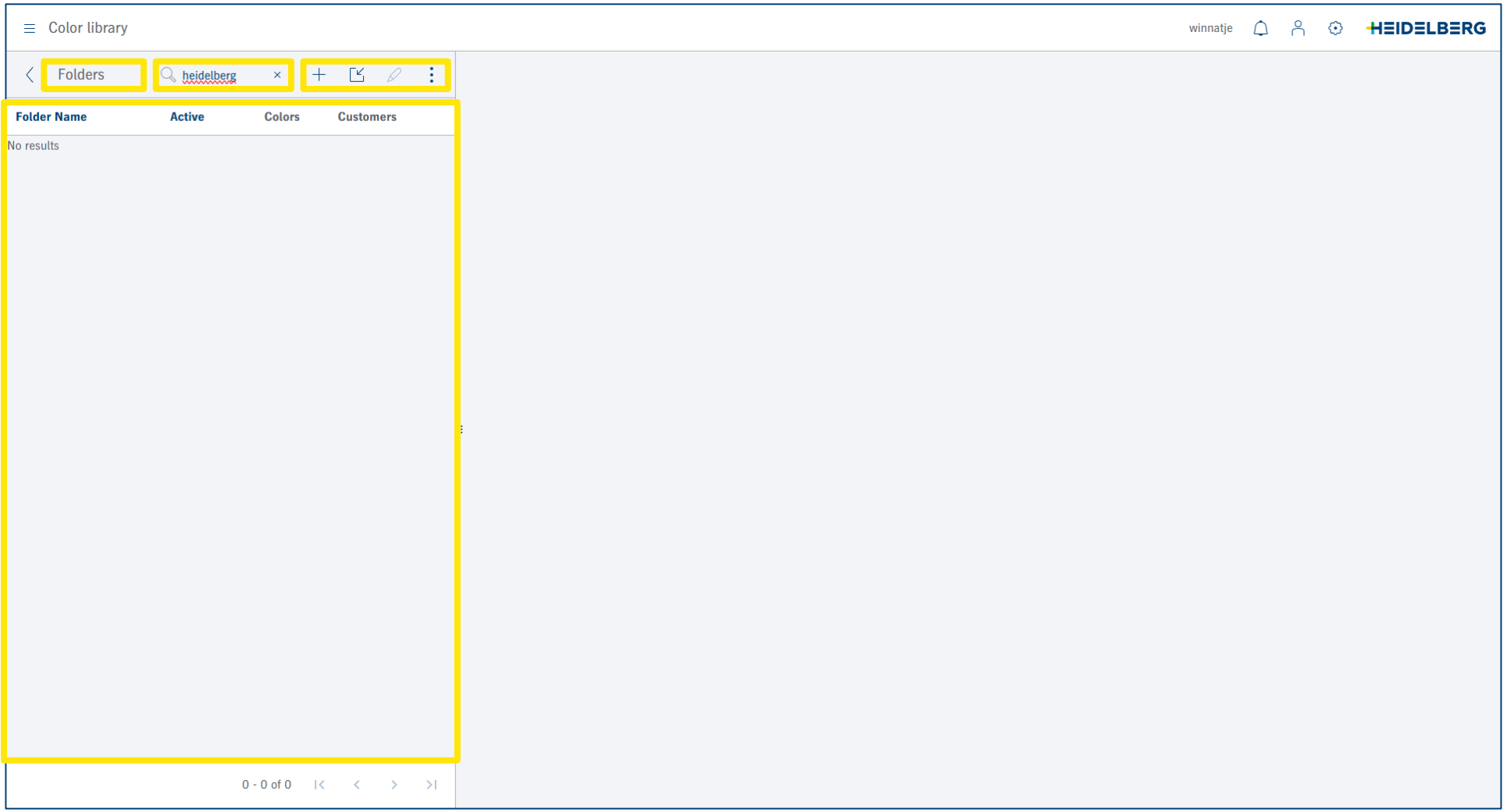
Prerequisites

User requires release/access to the Prinect Portal

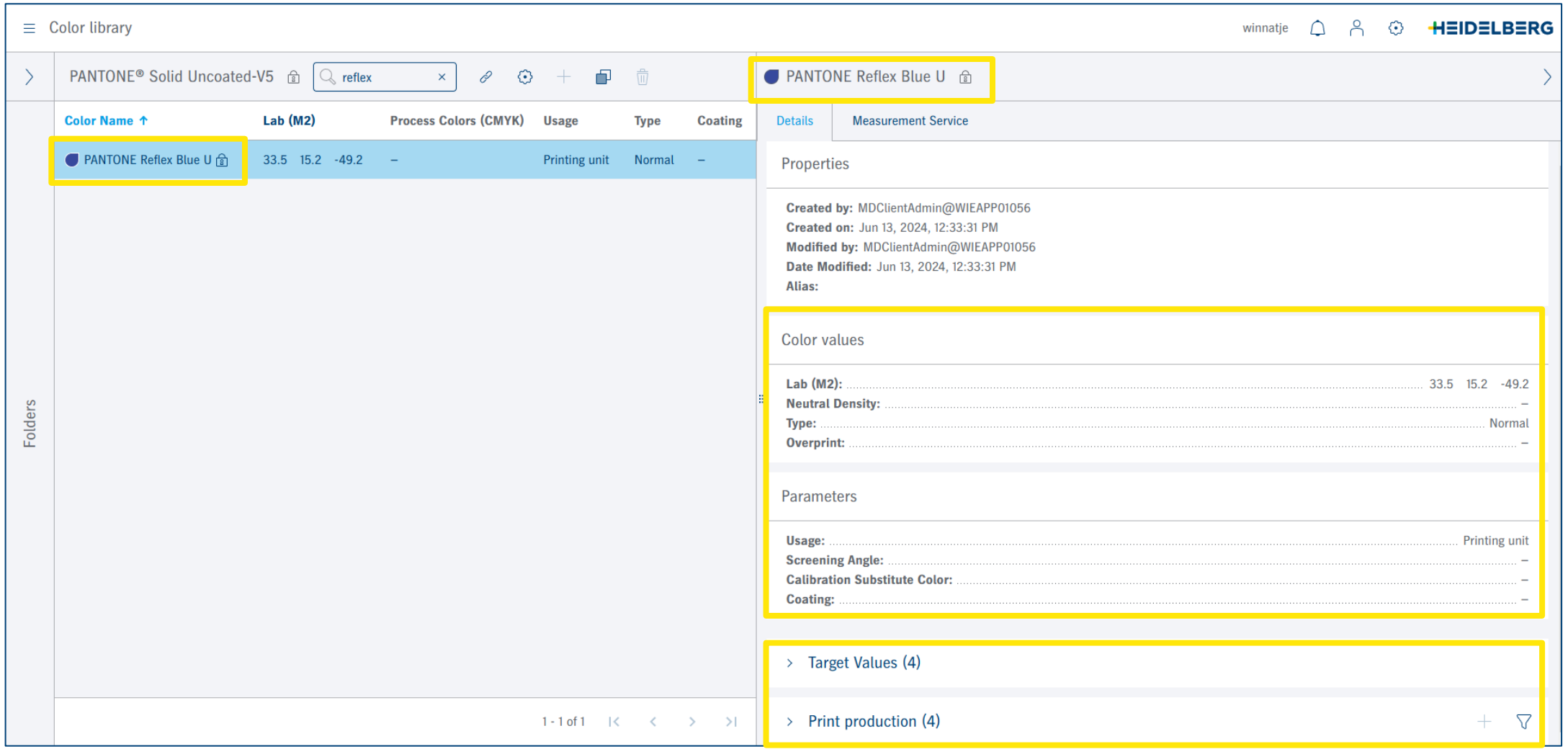
Connection via internet browser to Prinect Production



Prinect Color Library
Overview „Folders“



Prinect Color Library
Overview „Color details“



Prinect Color Library
Overview „Color details“

Target Values (4)

Measurement	Spectrum	Color (L*a*b*)	Paper White (L*a*b*)
M0		33.5 15.2 -49.2	97.5 2.2 -6.9
M1		33.6 15.9 -50.3	97.8 2.4 -10.1
M2		33.4 14.1 -47.9	97.3 -0.2 0.6
M3		25.4 12.6 -56.5	96.0 -0.1 0.1

Target values

- absolute values / no link to coated or uncoated paper
- dry values in prepress for proofing and digital print
- no access to the values from printing machine
- central place to manage colors

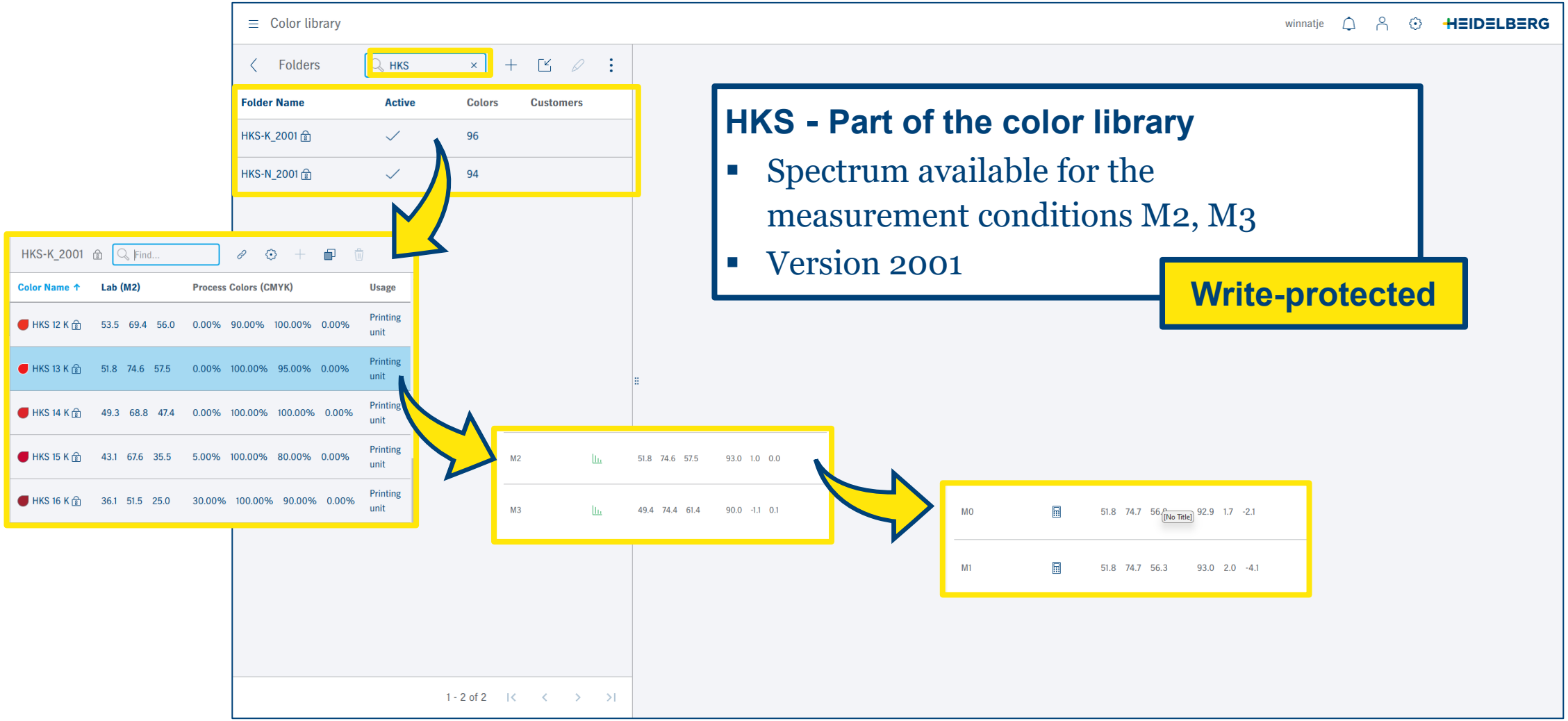
Print production (4)

Paper Type	Measurement	Spectrum	Color (L*a*b*)	Paper White (L*a*b*)
Uncoated	M0		33.5 15.2 -49.2	97.5 2.2 -6.9
Uncoated	M1		33.6 15.9 -50.3	97.8 2.4 -10.1
Uncoated	M2		33.4 14.1 -47.9	97.3 -0.2 0.6
Uncoated	M3		25.4 12.6 -56.5	96.0 -0.1 0.1

Print production (values)

- absolute values / link to coated or uncoated paper
- changeable only from press operator
- linked to target values

Prinect Color Library
Overview „HKS library“

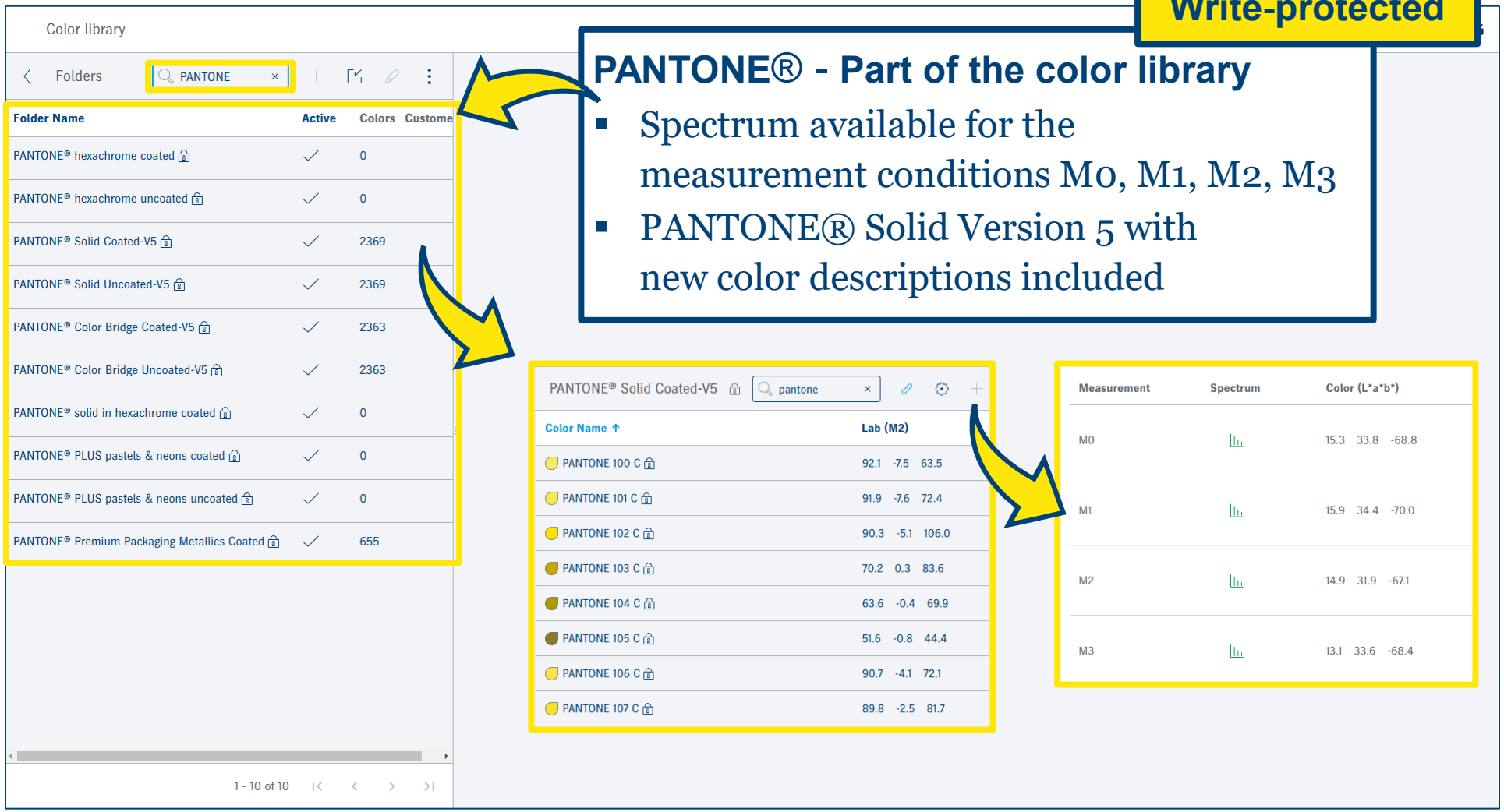


Prinect Color Library
Overview „PANTONE® library - V5 “

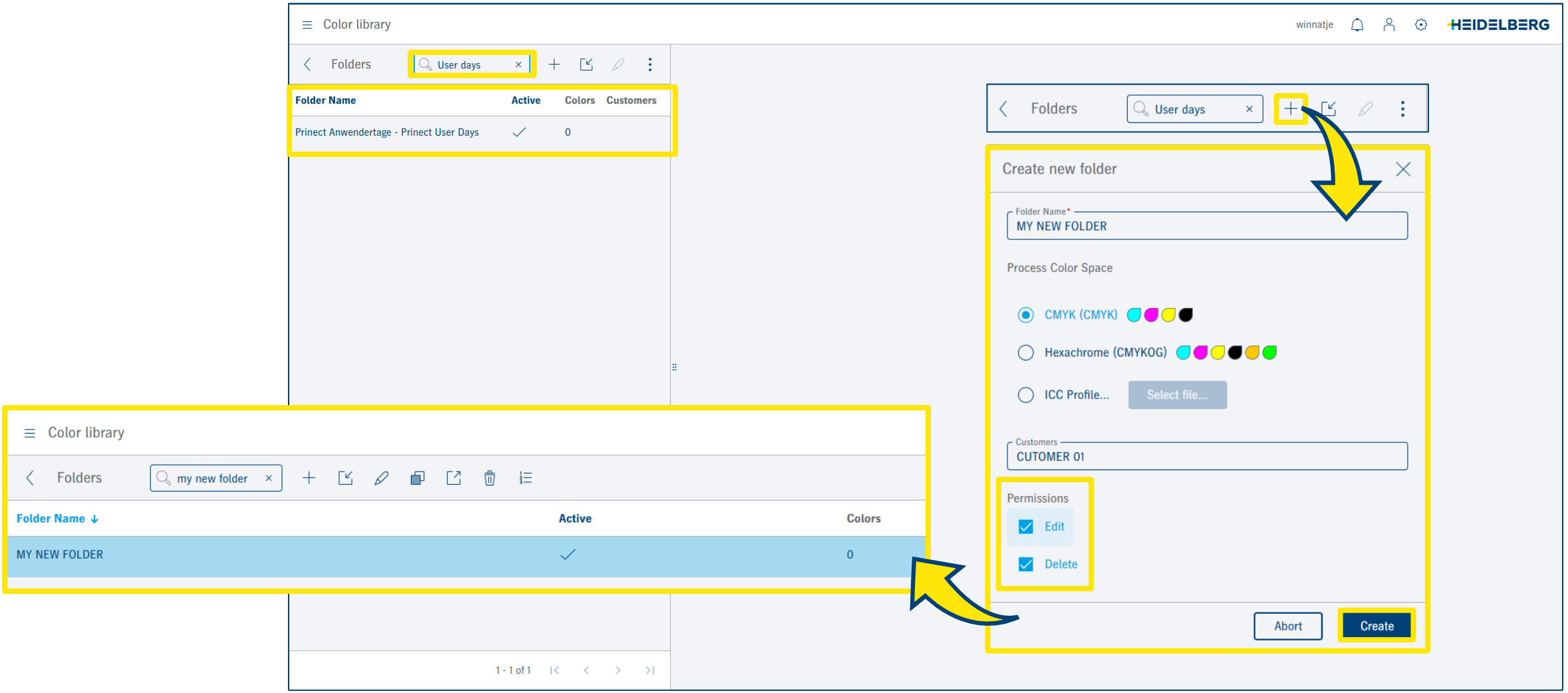
Write-protected

PANTONE® - Part of the color library

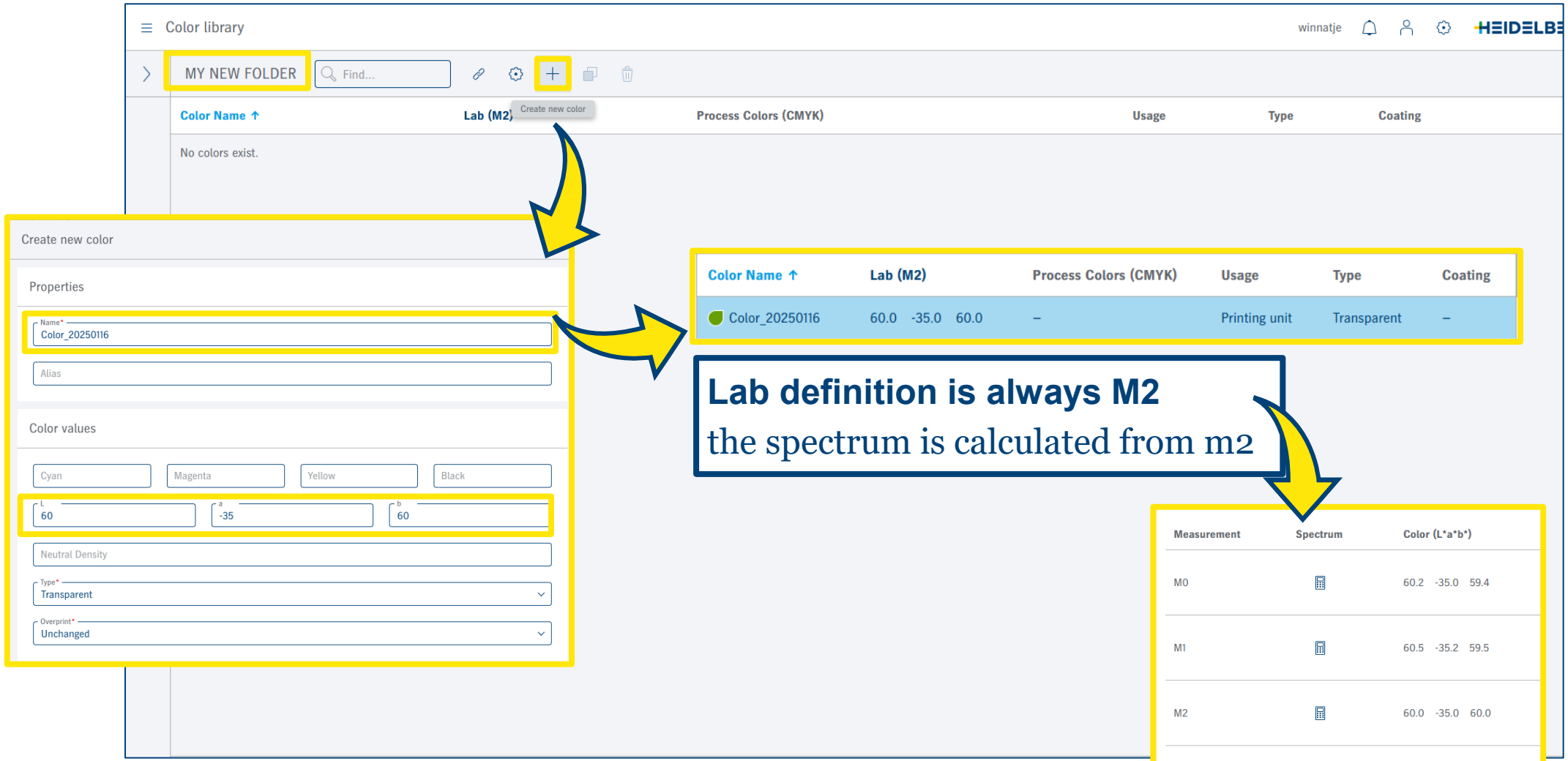
- Spectrum available for the measurement conditions M0, M1, M2, M3
- PANTONE® Solid Version 5 with new color descriptions included



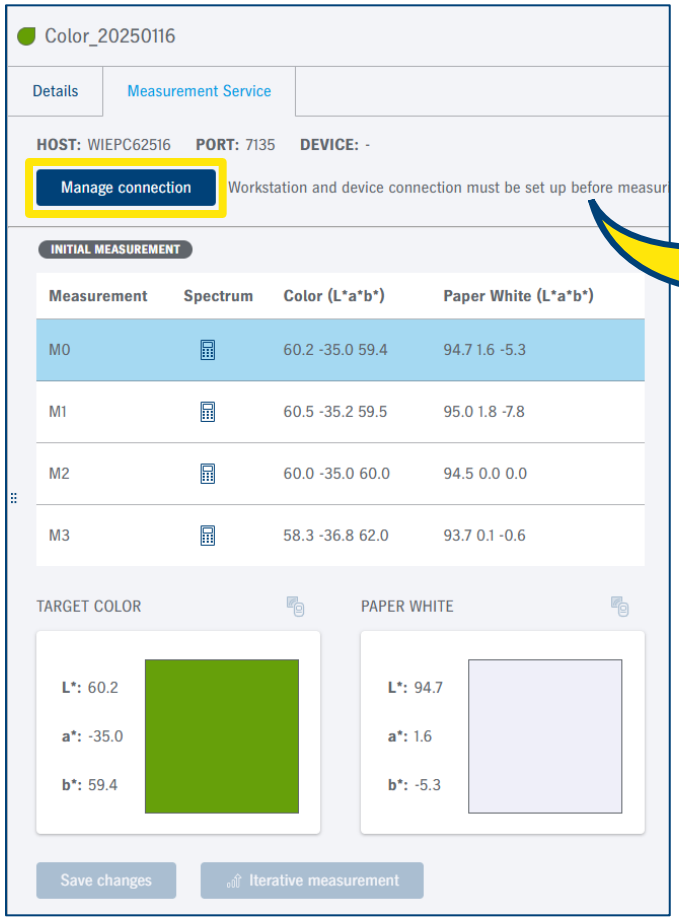
Prinect Color Library
Overview „Define individual Folders “

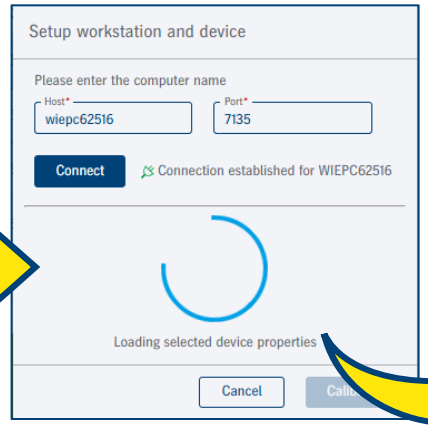


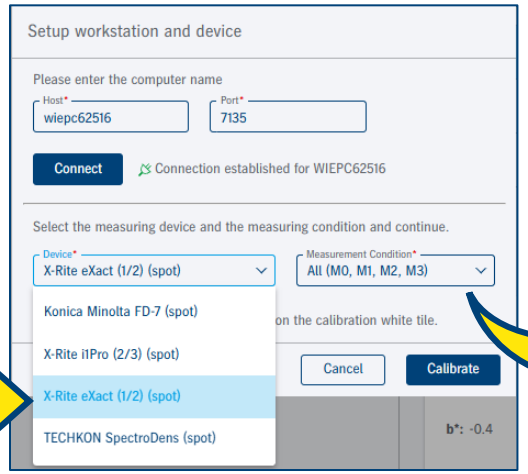
Prinect Color Library
Overview „Define individual colors in new folders via Lab “

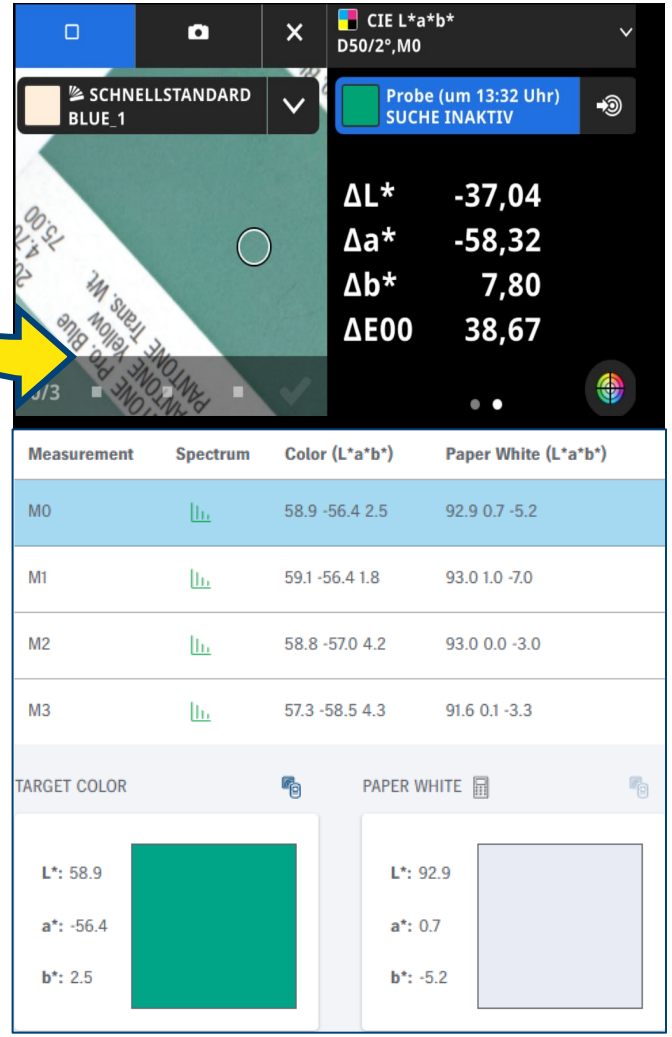


Prinect Color Library
Overview „Use handheld spectral device to measure color“





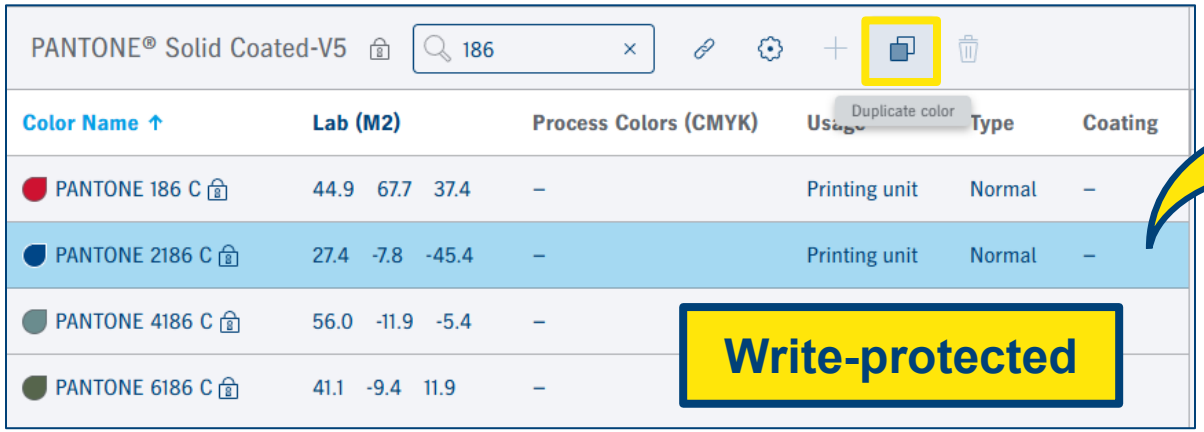


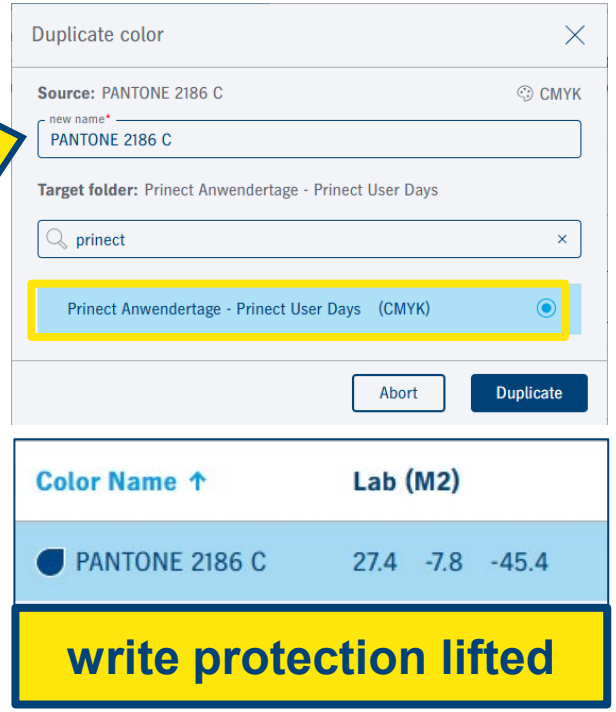


Spectral measurement

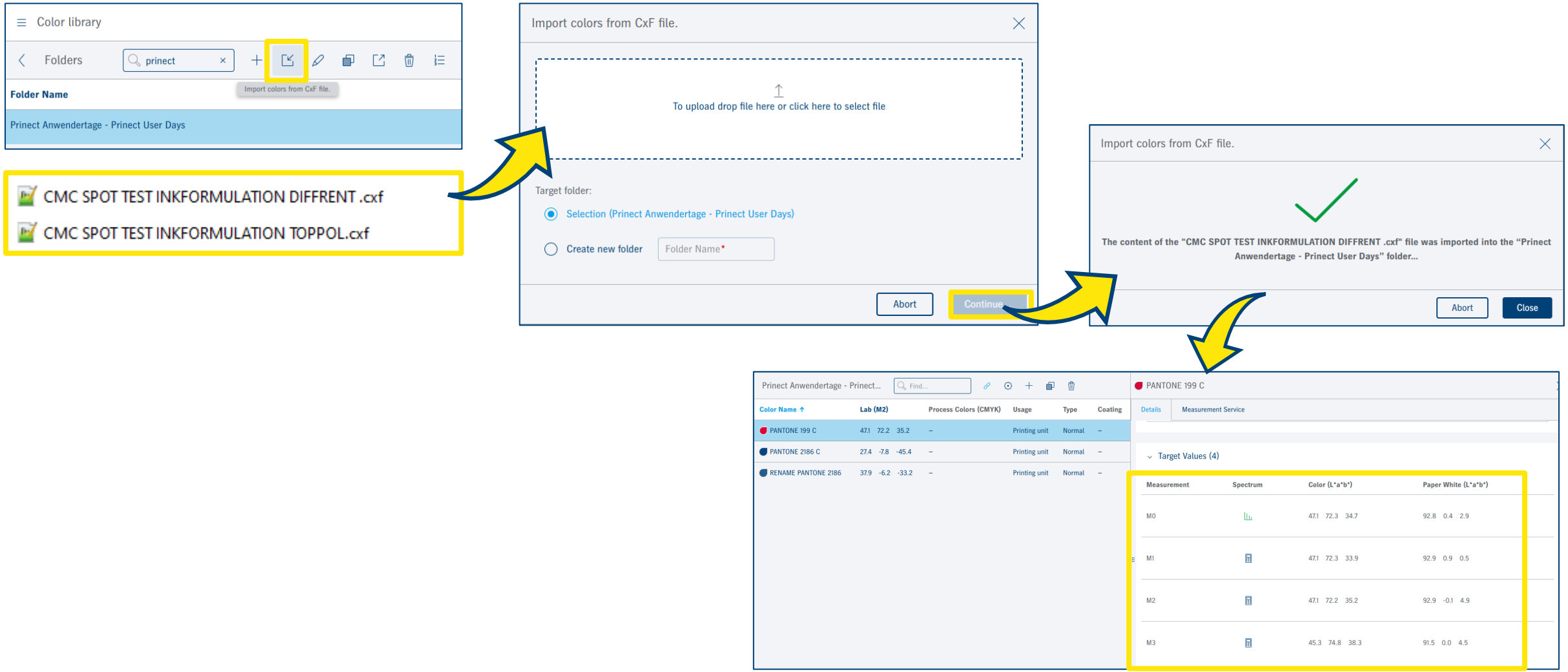
Depending on the measuring device, different measuring conditions can be measured simultaneously (Xrite Eaxct 2)

Prinect Color Library
Overview „Copy PANTONE ® color to individual folder“





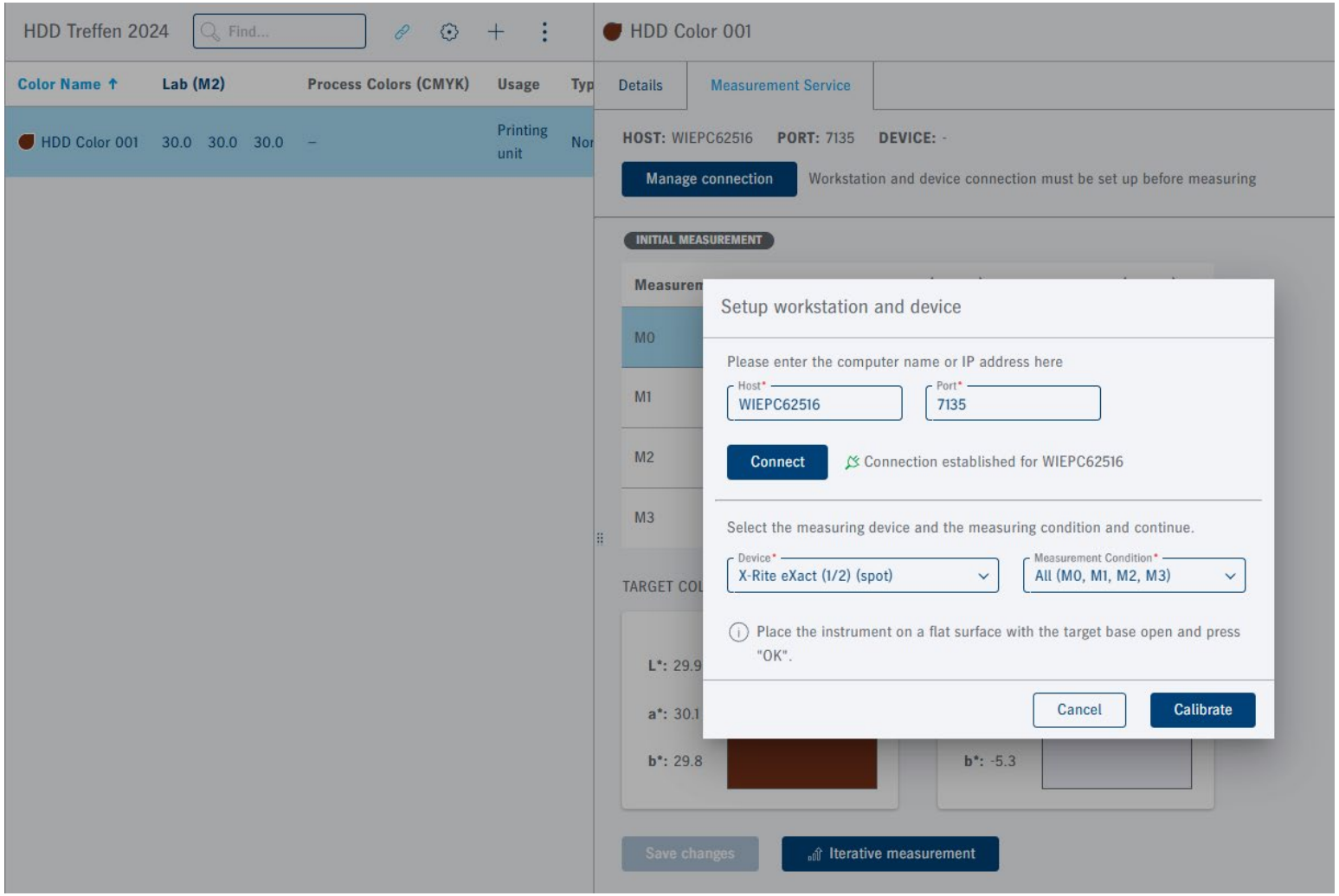
Prinect Color Library
Overview „Import CxF file“

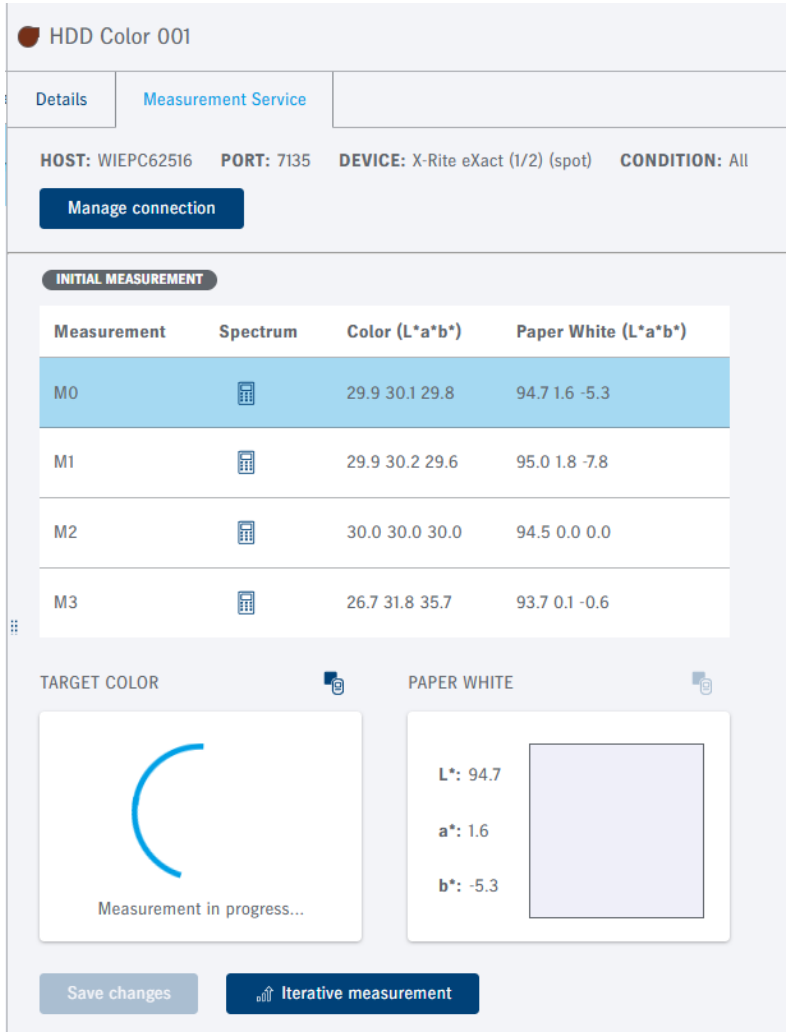


Measurement service

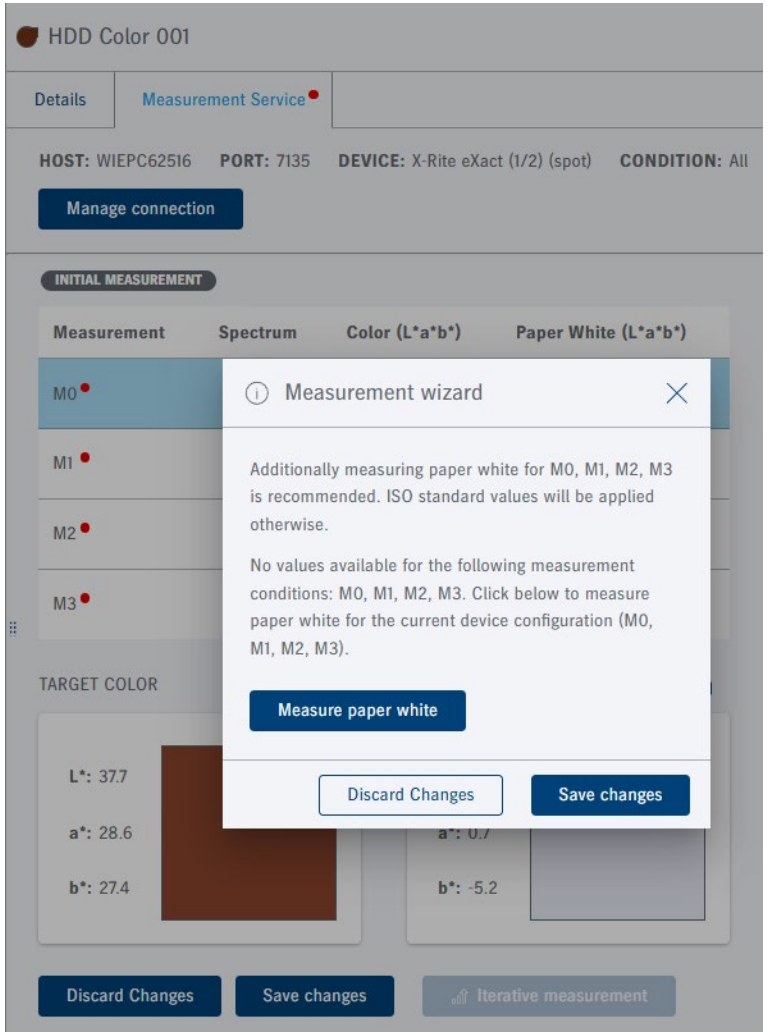
Color library

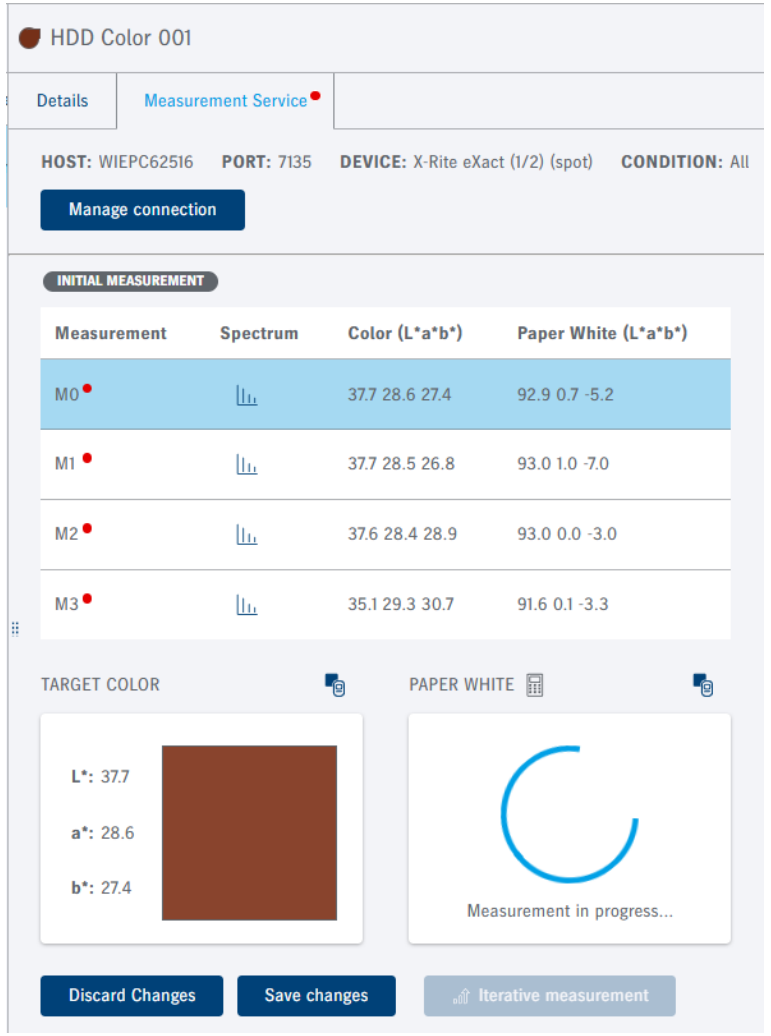
Measurement Service

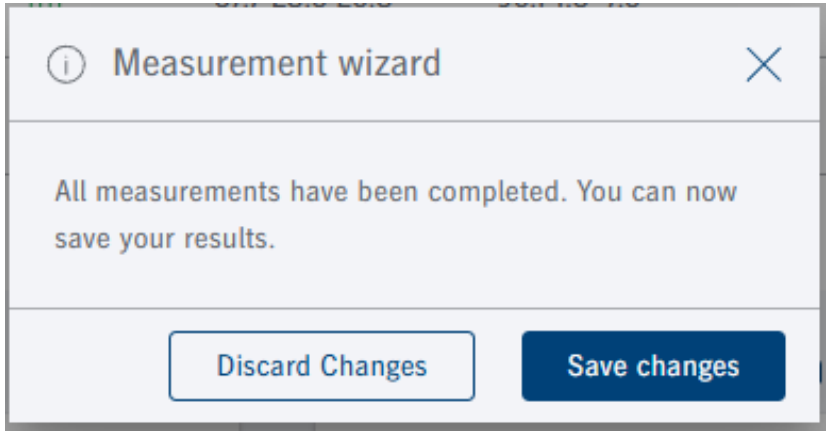


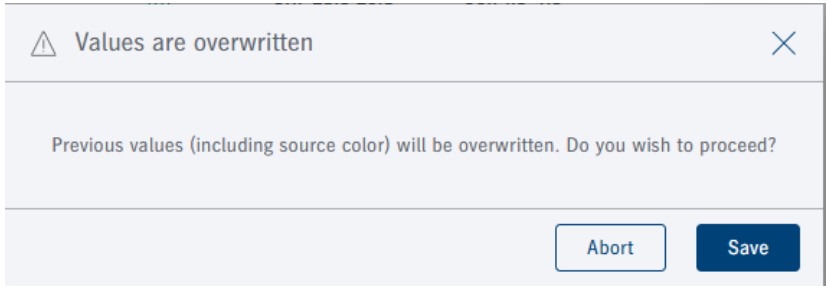


Measurement Service

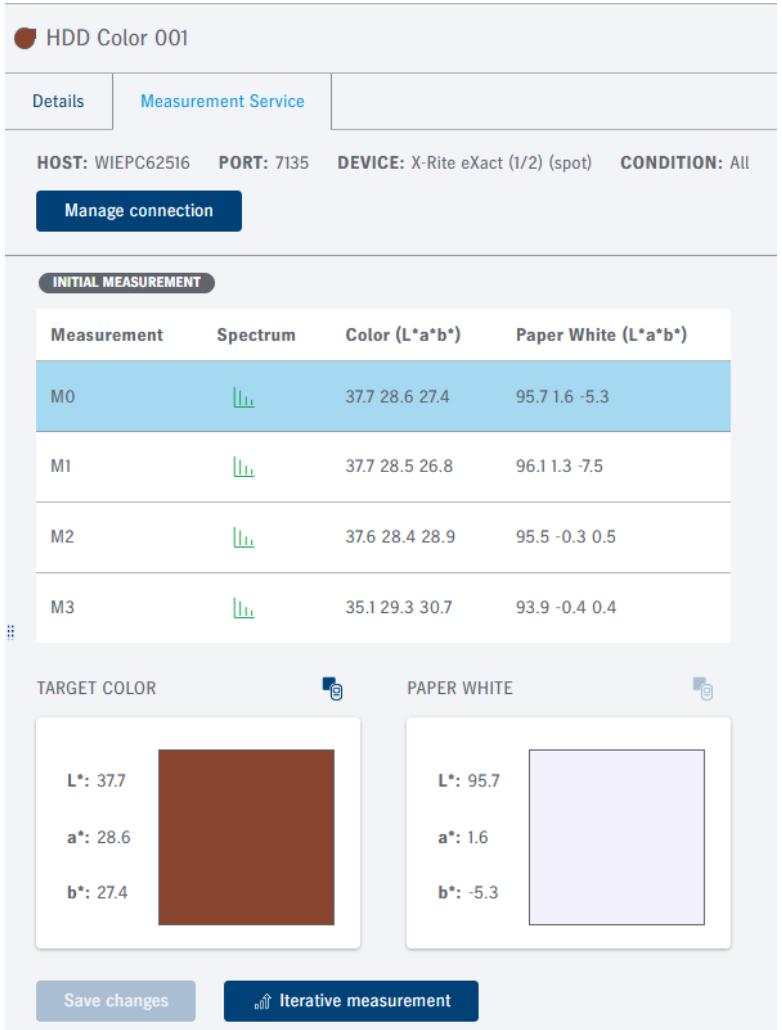


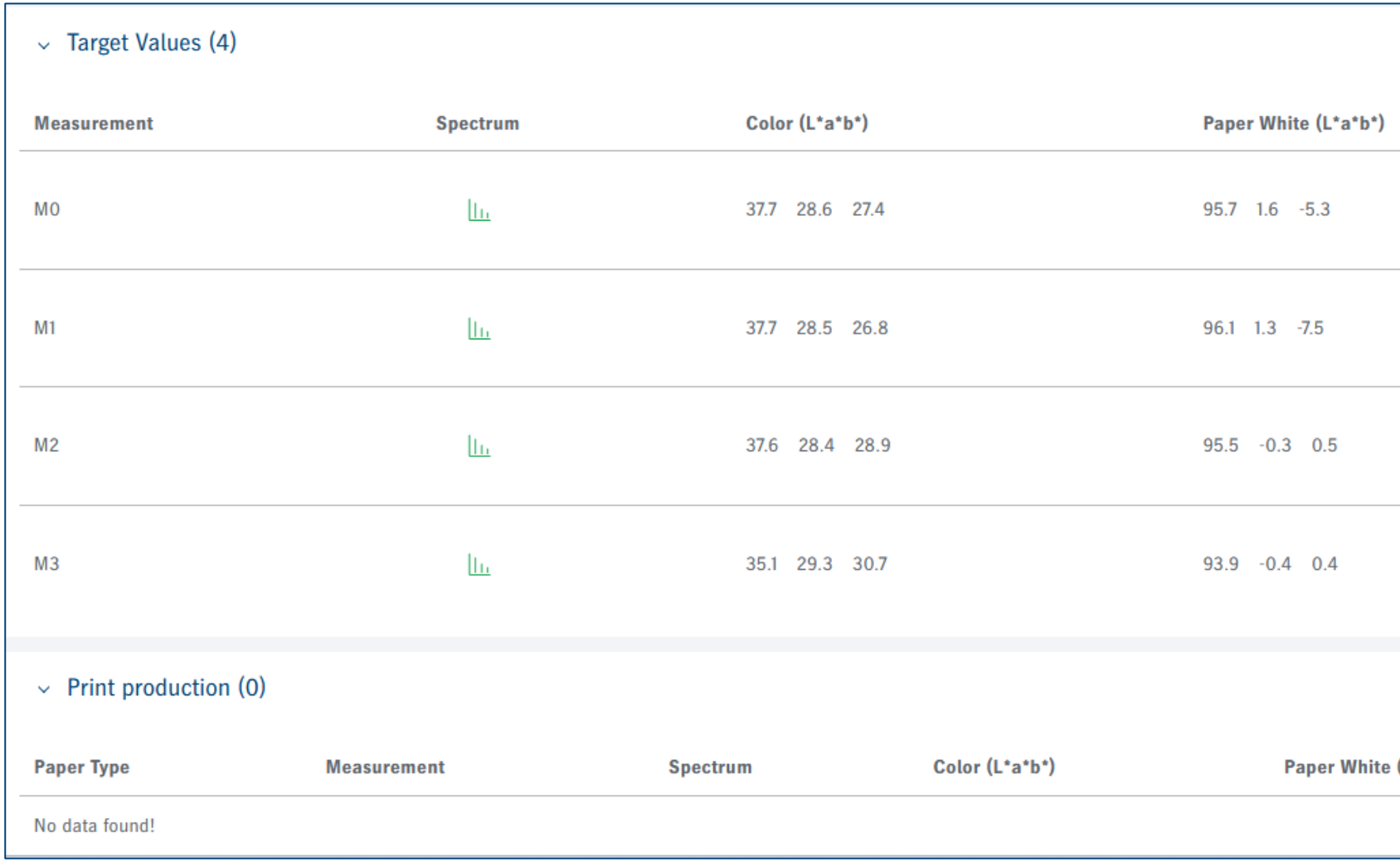




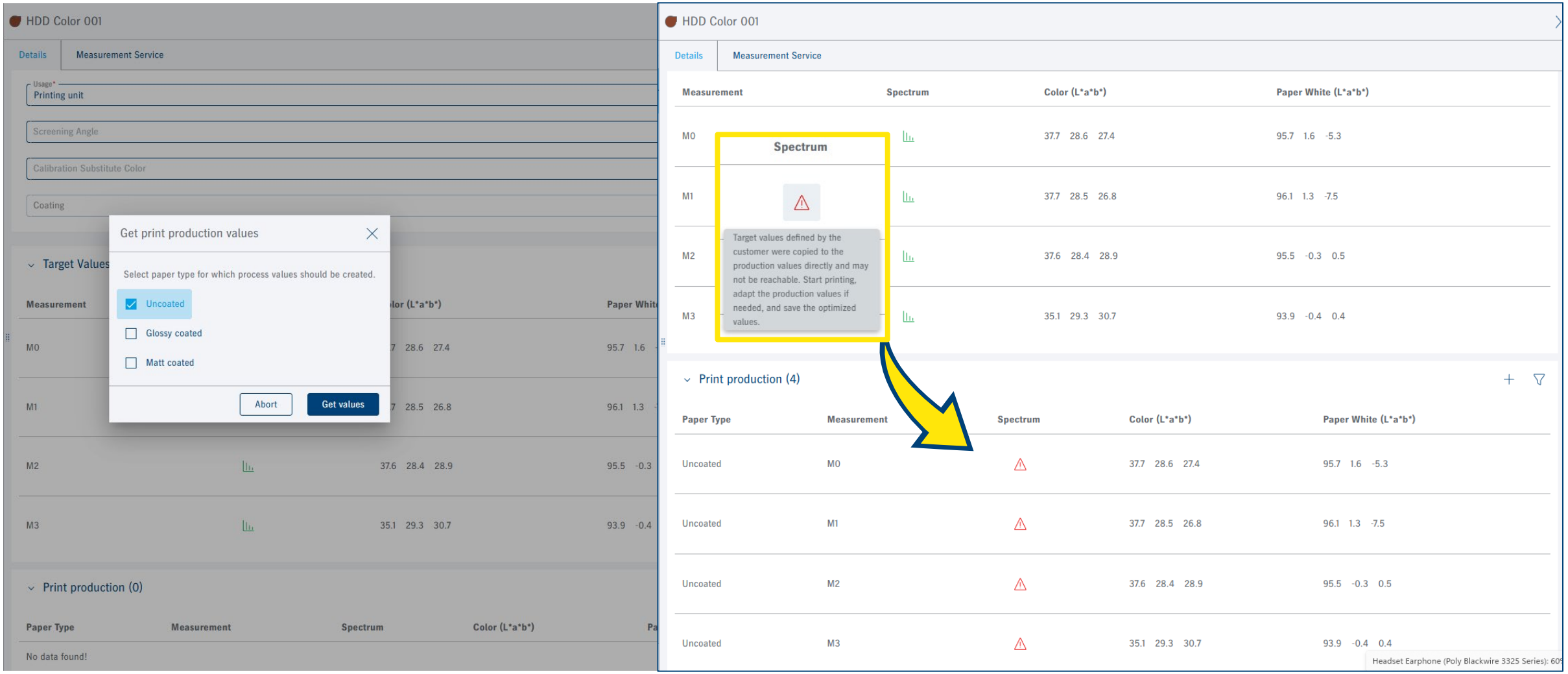


Measurement Service





Measurement Service

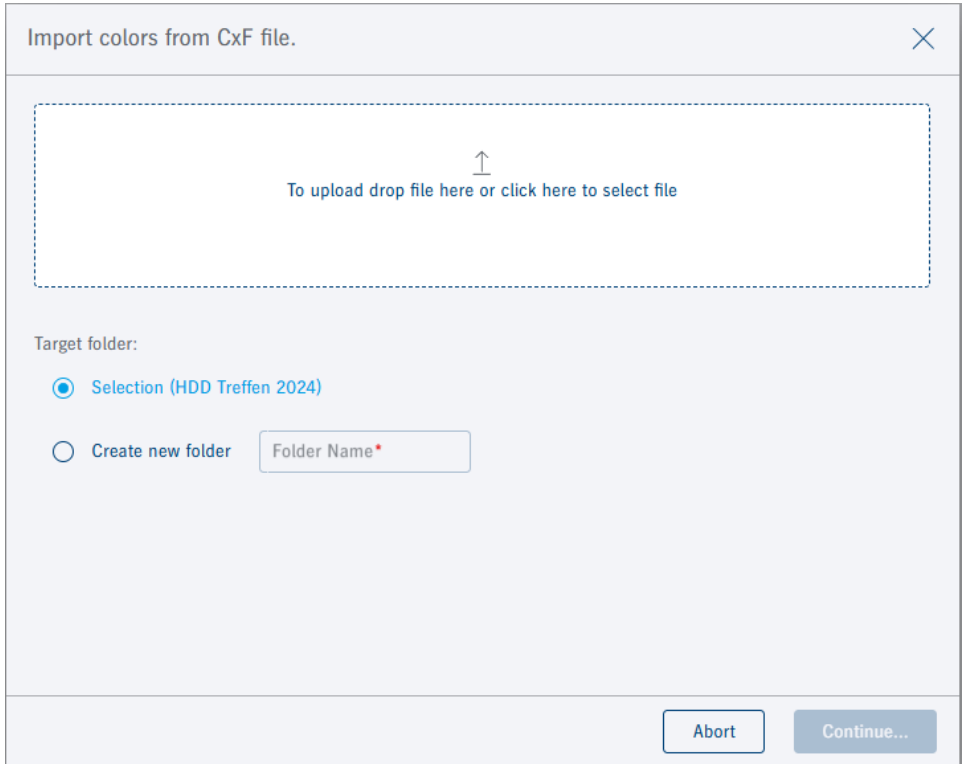


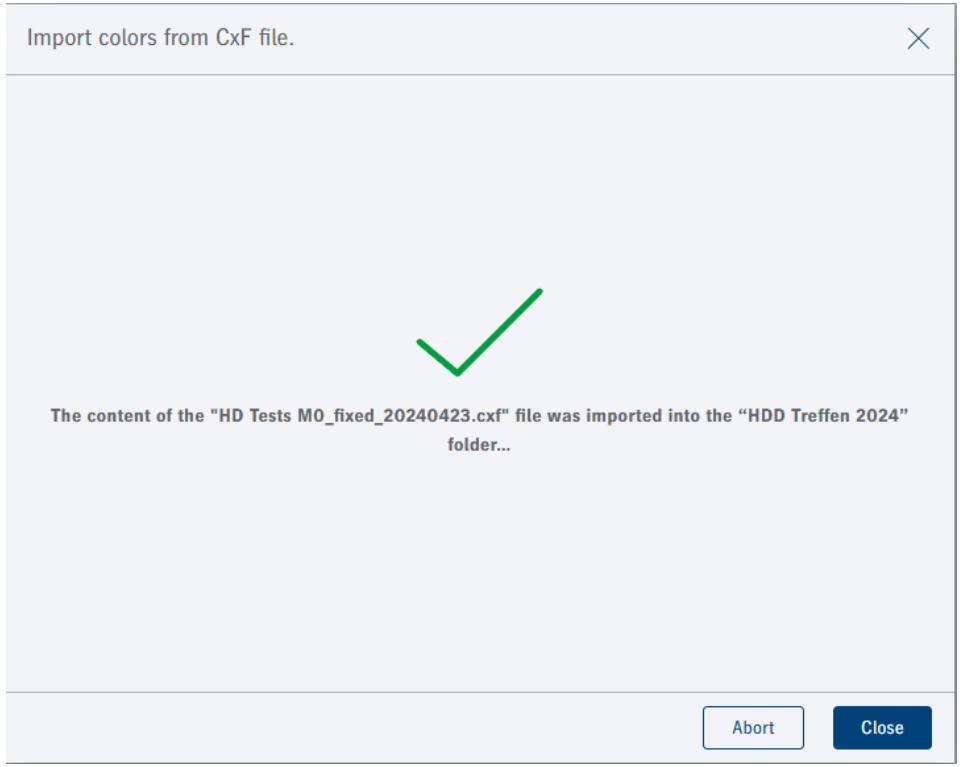
CXF-Import

Color library

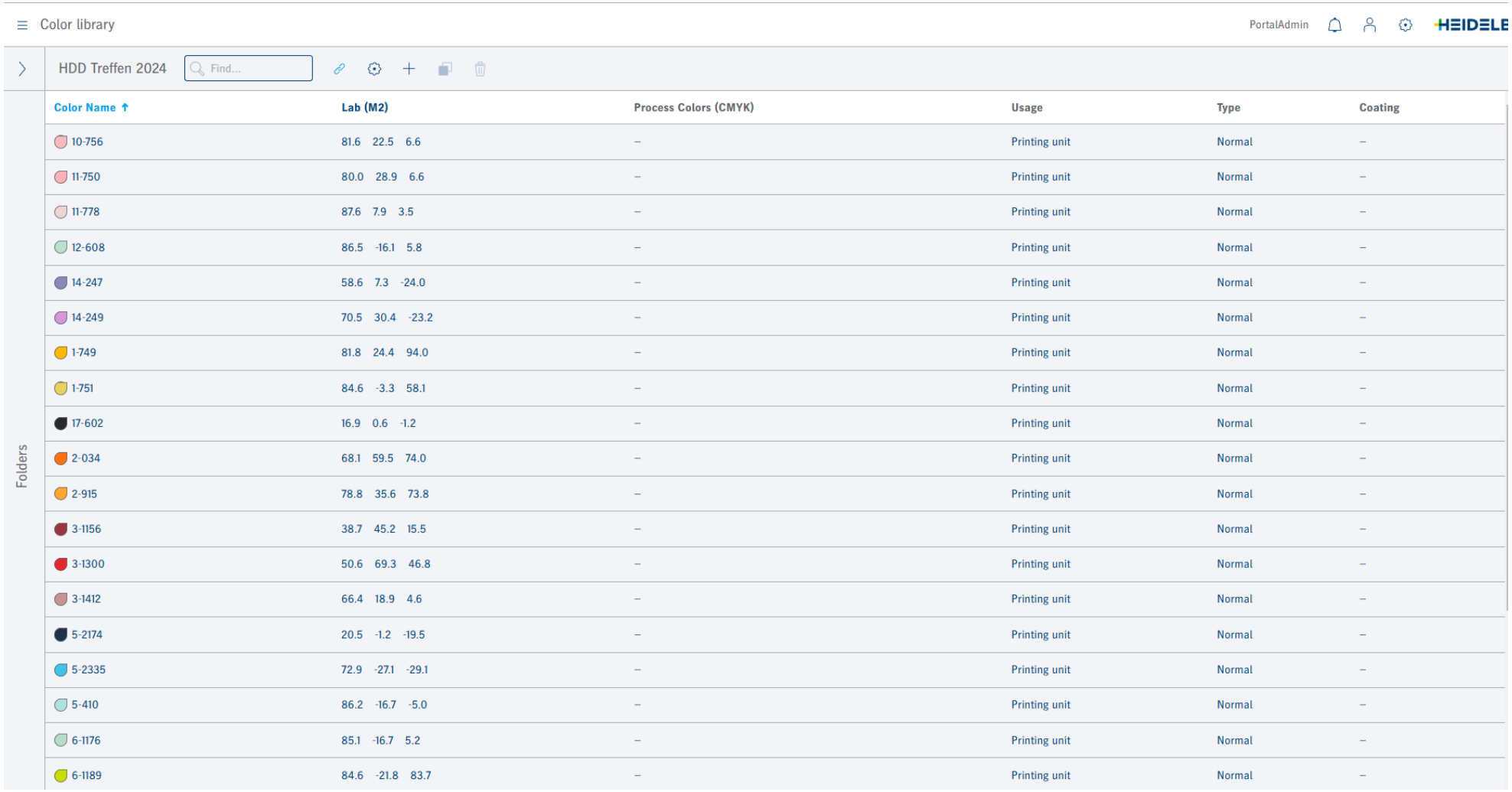
CXF Import


Color library
Folders
HDD
Import colors from CxF file.
Folder Name
Active
Colors
Customers


Import colors from CxF file.
To upload drop file here or click here to select file
Target folder:
Selection (HDD Treffen 2024)
Create new folder
Folder Name*
Abort
Continue...

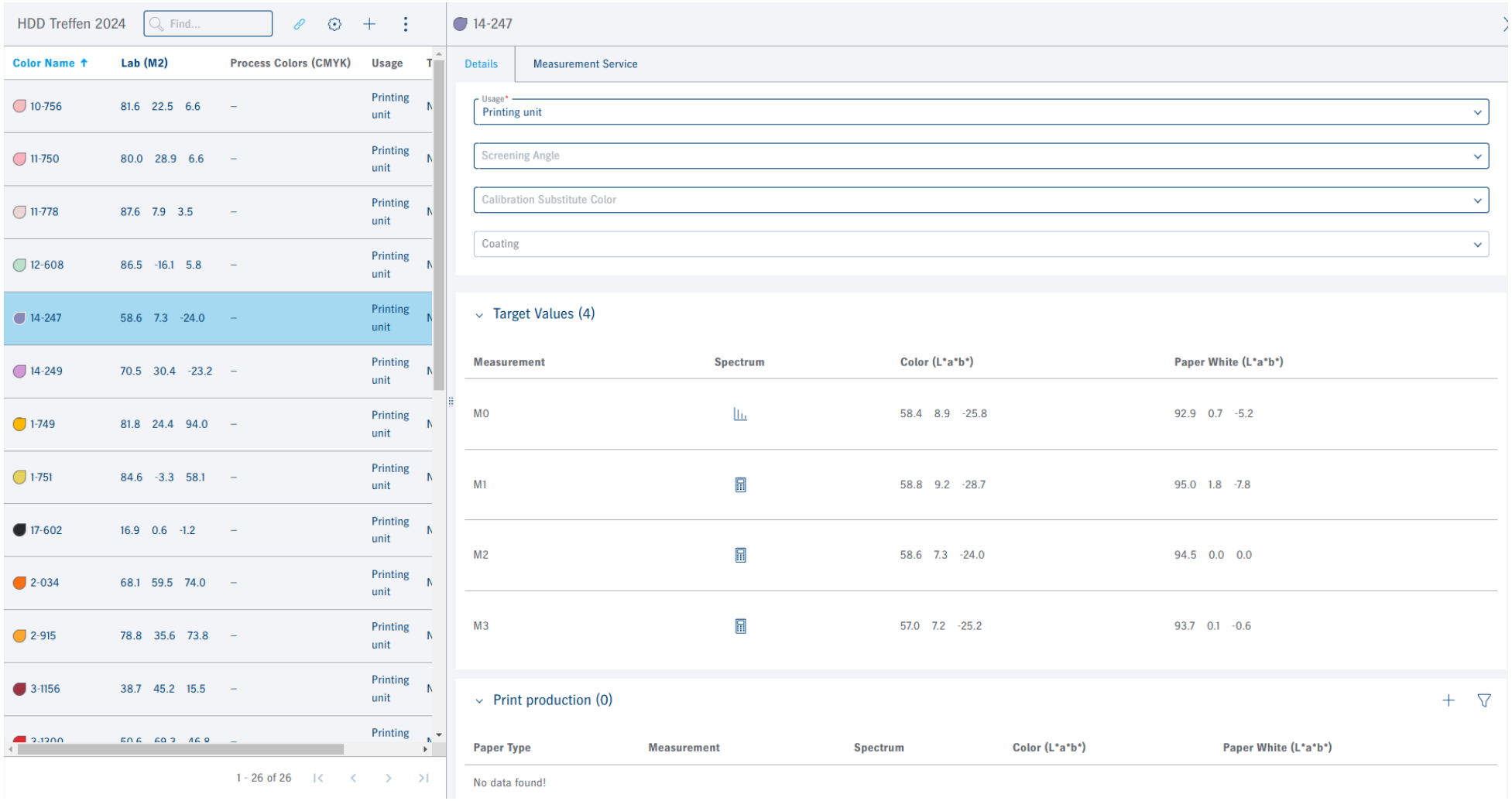

Import colors from CxF file.
The content of the "HD Tests M0_fixed_20240423.cxf" file was imported into the "HDD Treffen 2024" folder...
Abort
Close

CXF Import



Color Name ↑	Lab (M2)	Process Colors (CMYK)	Usage	Type	Coating
10-756	81.6 22.5 6.6	–	Printing unit	Normal	–
11-750	80.0 28.9 6.6	–	Printing unit	Normal	–
11-778	87.6 7.9 3.5	–	Printing unit	Normal	–
12-608	86.5 -16.1 5.8	–	Printing unit	Normal	–
14-247	58.6 7.3 -24.0	–	Printing unit	Normal	–
14-249	70.5 30.4 -23.2	–	Printing unit	Normal	–
1-749	81.8 24.4 94.0	–	Printing unit	Normal	–
1-751	84.6 -3.3 58.1	–	Printing unit	Normal	–
17-602	16.9 0.6 -1.2	–	Printing unit	Normal	–
2-034	68.1 59.5 74.0	–	Printing unit	Normal	–
2-915	78.8 35.6 73.8	–	Printing unit	Normal	–
3-1156	38.7 45.2 15.5	–	Printing unit	Normal	–
3-1300	50.6 69.3 46.8	–	Printing unit	Normal	–
3-1412	66.4 18.9 4.6	–	Printing unit	Normal	–
5-2174	20.5 -1.2 -19.5	–	Printing unit	Normal	–
5-2335	72.9 -27.1 -29.1	–	Printing unit	Normal	–
5-410	86.2 -16.7 -5.0	–	Printing unit	Normal	–
6-1176	85.1 -16.7 5.2	–	Printing unit	Normal	–
6-1189	84.6 -21.8 83.7	–	Printing unit	Normal	–

CXF Import


HDD Treffen 2024
Find...
Color Name
Lab (M2)
Process Colors (CMYK)
Usage
10-756 81.6 22.5 6.6 – Printing unit
11-750 80.0 28.9 6.6 – Printing unit
11-778 87.6 7.9 3.5 – Printing unit
12-608 86.5 -16.1 5.8 – Printing unit
14-247 58.6 7.3 -24.0 – Printing unit
14-249 70.5 30.4 -23.2 – Printing unit
1-749 81.8 24.4 94.0 – Printing unit
1-751 84.6 -3.3 58.1 – Printing unit
17-602 16.9 0.6 -1.2 – Printing unit
2-034 68.1 59.5 74.0 – Printing unit
2-915 78.8 35.6 73.8 – Printing unit
3-1156 38.7 45.2 15.5 – Printing unit
1 - 26 of 26
14-247
Details
Measurement Service
Usage*
Printing unit
Screening Angle
Calibration Substitute Color
Coating
Target Values (4)
Measurement
Spectrum
Color (L*a*b*)
Paper White (L*a*b*)
M0 58.4 8.9 -25.8 92.9 0.7 -5.2
M1 58.8 9.2 -28.7 95.0 1.8 -7.8
M2 58.6 7.3 -24.0 94.5 0.0 0.0
M3 57.0 7.2 -25.2 93.7 0.1 -0.6
Print production (0)
Paper Type
Measurement
Spectrum
Color (L*a*b*)
Paper White (L*a*b*)
No data found!

Summary

- **Standardize your color communication**
  - Use numbers – e.g. CIELab or CxF
  - Communicate measurement conditions

- **New technologies** allow:
  - Centralized color mangagment
  - Digitized color communication
  - Automated transfer of your color information

Prinect offers the tools to manage color.
HEIDELBERG supports you with color knowhow.

Thank you for your attention

LET'S CONNECT

PRINECT
USER DAYS