# **ColorCert 2.7 General Improvements**

#### Version History

- October 12<sup>th</sup> 2016 Version 1.0
- March 31<sup>st</sup> 2017 Version 1.1 (Updated support links)

## Scope

This document describes the general improvements in Profiles, Rules and Pressroom Tools for ColorCert Version 2.7.

## **Solution Summary**

### Improvements in ColorCert Profiles

Until ColorCert Version 2.6.7 a ColorCert Profile always required a Substrate and at least one Primary target. Now you can create Profiles with SpotColors only and Profiles with SpotColors and a Substrate.

The separation settings workflow has also been improved. It now uses two different icons to indicate if a SpotColor is a real ink or a build color and if separation settings for the build color are available.

### Improvements in ColorCert Rules

You can now check whiteness and opacity for substrate measurements. The substrate measurement can be excluded from scoring if a Substrate target is defined in the Profile, but you don't want to be scored against that value.

You can also define  $\Delta E$  methods with custom constants.

## Improvements in ColorCert Pressroom Tools

The visualization of the measurements results in the Pressroom Tools has been improved. It includes red and green dots to indicate pass/fail status and a larger viewer for the Lab graph.

The Numbers tab contains new strength calculation methods for colors, whiteness and opacity for substrates.

The measurement workflow for backing material has been improved.

## Requirements

- ColorCert 2.7 (Manager, to set up the new improvements in Rules and Profiles)
- ColorCert 2.7 (Pressroom Client or Pressroom Essentials Client, to use the new improvements in jobs)
- Useful samples and information from the ColorCert support website http://www.xrite.com/service-support/product-support/formulation-and-qc-software/colorcert-desktop-tools
  - Color Basics for Pressroom (Rev. B) (physical sample sheet in the eXact box)
  - ColorCert ColorBasics Sample Data
  - ColorCert Startup and Configuration Guide

## Improvements in ColorCert Profiles

#### **Removed Requirements of Substrate and Primaries**

The following Profile variations have been designed for packaging workflows using only solid SpotColors. These workflows usually do not require or allow substrate measurements.

• Profiles with SpotColors only (no Substrate or Primary required)

Profile	Ink	Substrate	SpotColor	Backing Material
Oclor Basisc Job Profile	Spot Only	Condition: 1. untitled	• + - untitled	ОК
Substrate				Load Save

• Profiles with SpotColors and Substrate (no Primary required)

Profile Editor				
[ColorCert Profile]				
Profile	Ink	Substrate	SpotColor	Backing Material
Color Basisc Job Profile S	ipot and Sub	Condition: <b>1. untitled</b>	+ - untitled	ок
Substrate				Load 🔻
Primaries		1 SpotColors Color Basics G 2 N Color Basics O	reen 💽 🙀 🗆 🔆 [ range 💽 🗮 🗮 🌣 [	Export • Extract X Clear All

### **Separation Settings**

SpotColors in the ColorCert Profile can be either a real printed ink or a build color separated from the Primaries. The icon for that has been improved:

SpotColors	
1 🔦 Color Basics Green	→ Real Ink
SpotColors	
1 🦘 Color Basics Green 🛛 🕞 🖶 🗉 🔅 🗹 💥 🗐 🚛	→ Build
With a click on the Build & Separated icon, the Build Finder Window opens:	
SpotColors	
1 🔦 Color Basics Green 🛛 🕞 🖶 🗆 🔅 🗵 💥 🖉 🚛	→ Build & Separated



#### Select Mark as Build and separate.

1: NColor Ba Enable the Medi	L 51.00 a -61.00 b 7.00 sics Green astrip® Editor to	L 51.25 a -58.92 b 6.99	ΔL ( Δa 2 Δb -(	0.25 <b>∆E</b> 2.08 0.01 La e patch within	0.62 b: Build Color -> Target the saved Mediastrip.	Mark as Build	d separate
<ol> <li>Cyan</li> <li>Cyan</li> <li>Magenta</li> <li>Yellow</li> <li>Black</li> </ol> Profile Name: Rendering Int	a ISO Coated v2 ent: Absolute	2 (ECI) Colorimetric		97.6 % 0.4 % 71.4 % 0.4 %			Auto Separate 3.0 % Min Coverage Max Channels ΔΕ00 (1:1:1) Minimize ΔΕ

- **SpotColor** shows the difference between the target SpotColor and the predicted build color based on the separation settings.
- Separation Settings can be adjusted manually.
- If an icc profile is used for the Profile you can click on **Auto Separate** and the separation settings are adjusted automatically based on the content of the icc profile.
- Click on **Minimize**  $\Delta E$  to minimize  $\Delta E$  using the following parameters:
  - Min Coverage: minimum ink coverage required (in percent)
  - o Max Channels: maximum amount of channels to be used for the build color
  - $\circ$   $\Delta$ **E Formula**: Select the formula for the calculation.
- Click Lab: Build Color -> Target to use the predicted build color values as the new SpotColor target.

#### Some important correlations to know:

- To measure Dot Gain for a specific color, this color must be added under Primaries.
- A Substrate target is required if your Profile contains Primaries.
- A Profile without Substrate cannot be combined with Rules that require substrate measurement.
- Primaries are required if your Profile uses SpotColors defined as build colors.

## Improvements in ColorCert Rules

### **More Substrate Checks**

In ColorCert Rules in Settings 1 you now have the following check values under Substrate:

les Editor - Settings 1	1					
Settings 1	Settings 2	Settings 3		Settings 4	Settings 5	Settings 6
Color Basics Job Rul	es Scan and Sub Method of Analysis:	ColorCert® Standard	•	Patches or	n Mediastrip: 0 25 50 75 100	•
ıbstrate						Load
☑ Check Substrate Co	olor Tolera	nce: 3.0	Method: 🛛 🗠 🕹	•	Exclude from Scoring	Save Clear All
📝 Check Substrate W	hiteness Tolera	nce: ± 10.0			Exclude from Scoring	
📝 Check Substrate O	pacity Tar	get: 70.0 %			Exclude from Scoring	
	Tolera	nce: ± 10.0 %				

- Select Check Substrate Color if you want to check the ΔE value of the substrate in the Pressroom Tools. Define Tolerance and ΔE formula as usual.
- Select **Check Substrate Whiteness** if you want to check the CIE Whiteness of the substrate in the Pressroom Tools. Define **Tolerance** as a percentage value.
- Select **Check Substrate Opacity** if you want to check the **Opacity** of the substrate in the Pressroom Tools. Define **Target** and **Tolerance** as a percentage value.

All of the above require a substrate measurement. The target values are defined in the Substrate target in the Profile. For Opacity an additional single measurement of the substrate over black is required after all other measurements in the Pressroom Tools.

- Select **Exclude from Scoring** if you do not want to calculate one of the above values into the job score.
- Select **Substrate is obligatory Requirement** if you require a Substrate target in the Profile. Otherwise the availability of a Substrate target in the Profile determines if the above values are checked in the Pressroom Tools.

## **Rules and Profile Combinations**

All measurement options are now passive.

- If you select **Check Substrate Color** in the Rules, but the Profile does not contain a Substrate target, you are not asked to measure the substrate in the Pressroom Tools.
- If you do not select **Check Primaries** in the Rules, but the Profile contains a Primary it will not be measured in the Pressroom Tools.
- The above scenarios are true in all cases with the exception of **Substrate is obligatory**. If you selected this in the Rules you are not able to combine it with Profiles that do not contain a Substrate target.

If a Profile does not contain a Substrate target:

- Density White Base calculation reverts to Absolute no matter what is defined in Rules.
- BestMatch is deactivated.
- You are not asked to measure MinDot, Dot Gain or Undertones.

Profile					R	ules					Pr	essr	oom	Tool	S	
Substrate	Primary	SpotColor	Substrate	Substrate obligatory	Primary	SpotColor	Undertones	MinDot	Dot Gain	Substrate	Primary	SpotColor	Undertones	MinDot	Dot Gain	Density
x	x	x	x	x	x	x	×	×	x	$\checkmark$						
x	×	x	x		x	×	×	×	x	$\checkmark$						
x	×	x			x	×	×	×	x	*	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
x	×	x			x	×					$\checkmark$	$\checkmark$				√**
x		x	x		x	×	×	×	x	$\checkmark$		$\checkmark$				$\checkmark$
		x	x		x	×	×	×	x			$\checkmark$				√**
		x	x	x	x	×	x	×	x		(	Cannot	be co	mbine	d	

\* Substrate is measured but results are not shown. The substrate measurement is used for MinDot, Dot Gain, Undertones and Density calculations.

\*\* Density White Base calculation defaults to **White Base = Absolute** because the substrate is not measured.

### Custom $\Delta E$ Constants

Wherever you are able to select the  $\Delta E$  method in the ColorCert Rules you can now define custom  $\Delta E$  formula constants for  $\Delta E_{CMC}$ ,  $\Delta E_{94}$  and  $\Delta E_{2000}$ .

Method:	ΔE00 (1:1:1) -	ſ	
	AF		[ΔE Method Editing]
	ΔEcmc (1:1) ΔEcmc (2:1)		Υ         Function Type: ΔΕ00
	ΔE94 ΔE00 (1:1:1)		Display as: ΔΕ00 (1:1:2)
	ΔE00 (2:1:1)		KL: 1.0
	ΔE00 (0.5:1:1) ΔE00 (1:0.5:1)		KC: 1.0 A
	ΔE00 (1:1:0.5)		КН: 2.0
	ΔE Custom		
	- Edit Custom		Cancel

The constants affect the  $\Delta E$  calculation. For example  $\Delta E_{2000}$  has constants for the Lightness (KL), Chroma (KC) and Hue (KH), depending on the ratio of these constants the tolerance levels of these parameters are higher or lower.

#### Examples

∆ <b>E2000 (1:1:1)</b>	All constants have the same tolerance. This is the usual $\Delta E_{2000}$ formula
∆ <b>E2000 (2:1:1)</b>	The lightness tolerance is higher than chroma and hue. Color differences in <b>lightness</b> are treated with <b>less importance</b> .
∆ <b>E2000 (1:2:1)</b>	The chroma tolerance is higher than lightness and hue. Color differences in <b>chroma</b> are treated with <b>less importance</b> .
∆ <b>E2000 (1:1:2)</b>	The hue tolerance is higher than lightness and chroma. Color differences in <b>hue</b> are treated with <b>less importance</b> .
∆ <b>E2000 (0.5:1:1)</b>	The lightness tolerance is lower than chroma and hue. Color differences in <b>lightness</b> are treated with <b>more importance</b> .
∆E2000 (1:0.5:1)	The chroma tolerance is lower than lightness and hue. Color differences in <b>chroma</b> are treated with <b>more importance</b> .
∆ <b>E2000 (1:1:0.5)</b>	The hue tolerance is lower than lightness and chroma. Color differences in <b>hue</b> are treated with <b>more importance</b> .

## Improvements in the Pressroom Tools

#### **Opacity Measurement**

Open your job as usual and click Measure Tool. If the job requires the opacity of the substrate to be measured (Opacity check selected in the Rules and Substrate target available in the Profile) you are asked to measure the patches of your strip as usual. Afterwards you are asked to measure your substrate over a black backing material.



### **Backing Material Measurement**

If the job requires a measurement of the backing material (Backing Material defined as target and tolerance in the Rules) you are asked to measure your backing material after your first measurements with the Measure Tool. You only have to measure it once per job but it can be canceled and activated with a button in the Summary tab at any time.



If the measurement is out of tolerance you can repeat the measurement up to three times:

[Check Backing Material]	[Check Backing Material]				
Color Basics Backing Material	Color Basics Backing Material				
Place the Instrument on the Backing Material and take a Reading.	Place the Instrument on the Backing Material and take a Reading.				
Check Backing Failed!	Check Backing Failed!				
Please check White Backing for compliance with Reference Material as described.	Please check White Backing for compliance with Reference Material as described.				
Target         L = +91.2         4.68 / 4.00           a = -0.1         b = -0.2         ΔE	Target         L = +91.2         4.48 / 4.00           a = -0.1         b = -0.2         ΔE				
Sample L = +92.4 a = +1.6 b = -4.4	Sample L = +92.3 a = +1.4 b = -4.3				
Cancel Check again	Cancel Use Anyway				

If you click **Cancel** or **Use Anyway**, the Summary tab will show that the last backing measurement is not compliant. Click **Measure** to start the measurement again.



If the measurement is in tolerance the following window appears for a few seconds. The result is accepted automatically.

[Chee	:k Backing Material]
Colo	r Basics Backing Material
?	Place the Instrument on the Backing Material and take a Reading. 🕢 Check Backing passed. Backing is compliant with Reference Material!
	Cancel OK

The Summary tab now shows that the last backing measurement is compliant.

[Summary]					
				N	
	Current Measurement	Rating	Level		
History 🕨	Quality Level:	54	+	•	
History 🕨	Number of Issues:	3		i 🔶 🔰	
		[Backing Compliant]			

If you want to check the backing material in this job again, go to **Tools -> Check Backing** and the Measurement window will open again.

## **Visual improvements**

Color_Basics_Job_	_Scan_and_Sub.ccj							_ <b>_</b> X
File Edit Mediast	trip© Window Tools Jo	b Selection Mod	le Repository Pa	ntoneLIVE™ Help			1	1
Job Details Pres	ss Setup Media	Strip	Primaries Do	t Gain Spot Color	rs Summary	Scoreca	ard Inkroom T	ools Application
[Primaries]	_	_	_	_	_	_	_	_
	Ink Name		A.E.			Quality		
_	Ink Name	_	ΔΕ			Quality Le		
	Color Basics Black		2.36 / 4.00 😐					• •
	Color Basics Cyan		3.57 / 4.00 😐					•
	Color Basics Magenta		4.04 / 4.00 鱼					•
	Color Basics Yellow		2.22 / 4.00 🔎				-	•
	Substrate Name		ΔE	<b>∆</b> Whiteness	∆Opacity	Quality Le	vel 🖂	
	Color Basics Paper		2.67 / 3.00 🔶	-3.1 / ±10.0 🤇	-10.5% / ±10.0%	•	•	•
Numbers Guidance	ce History Mediastrip							
	Unit	Target	Sample	Diff	[ΔE]	ΔΕ Τ	olerance	Result
	L	23.05	23.86	0.81	[2.36]	2.36	4.00	PASSED
	а	-0.74	1.23	1.97				
	b	2.39	1.37	-1.03				
	C	2.51	1.83	-0.67				
	Strength (WSUM)	107.25	40.11 91%	-9%				
	Density Status T (Abs)	1.42 [Black]	1.39 [Black]	-0.03				
				Colorspace	CIELab 🔻	Optional A	ΔE Formula [ΔE]	•
<b>≵</b> x•rite		Sample 3/3		Proof	MeasureTool	eXact	•	Close

- Instead of the words Passed or Failed the window displays red and green dots behind each value.
- For Primaries and SpotColors the Numbers tab shows the **Strength** calculation. Please refer to the ColorCert BestMatch documentation for more information about the strength calculation.
- For Substrate you can see the  $\Delta E$  value, the  $\Delta Whiteness$  and the  $\Delta Opacity$  in one line.

**NOTE:** Substrate values that are not set to be excluded from scoring are calculated together as one substrate score.

- If one of the required substrate values fails, the score is limited to 49 (just failed) even if the average of all measurements would be higher (same logic like the Dot Gain score).
- If one of these values is excluded from scoring, the ∆ value is not displayed in the Substrate line, but the detailed values are displayed in the Numbers tab for analysis:

nbers (	Guidance	History Mediastrip							
		Unit	Target	Sample	Diff	[ <b>∆</b> E]	ΔE	Tolerance	Result
		L	94.17	91.61	-2.56	[2.67]	2.67	3.00	PASSED
		a	0.95	1.52	0.57				
		b	-4.25	-4.76	-0.52				
		C	4.35	5.00	0.65				
		h	282.65	287.69	5.04				
		Whiteness	103.4	100.3	-3.1			±10.0	PASSED
		Opacity	70.0%	59.5%	-10.5			±10.0%	FAILED
		Density Status T (Abs)							
					Colorspace	CIELab	▼ Opti	ional ∆E Formula [[4	/E]

## Large Viewer

Click on the **Lab Graph** in the Viewer to open a larger viewer of the Lab graph. The larger viewer allows you to **Zoom** in and out manually and to **Auto Zoom** so that the sample is just inside the viewer.

