

# 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

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

## Solution Summary

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### 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

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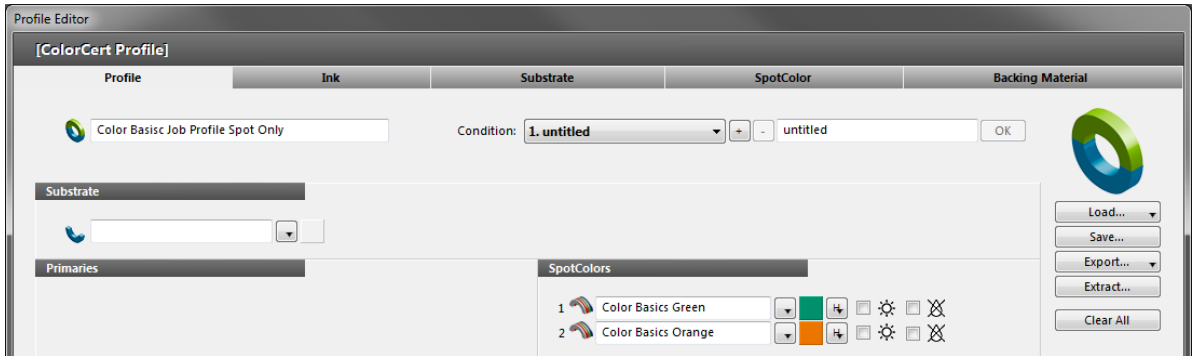
- ColorCert 2.7 (Manager, to set up the new improvements in Rules and Profiles)
- ColorCert 2.7 (Pressroom Client or Pressroom Essentials Client, to use the new improvements in jobs)
- Useful samples and information from the ColorCert support website  
<http://www.xrite.com/service-support/product-support/formulation-and-qc-software/colorcert-desktop-tools>
  - 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

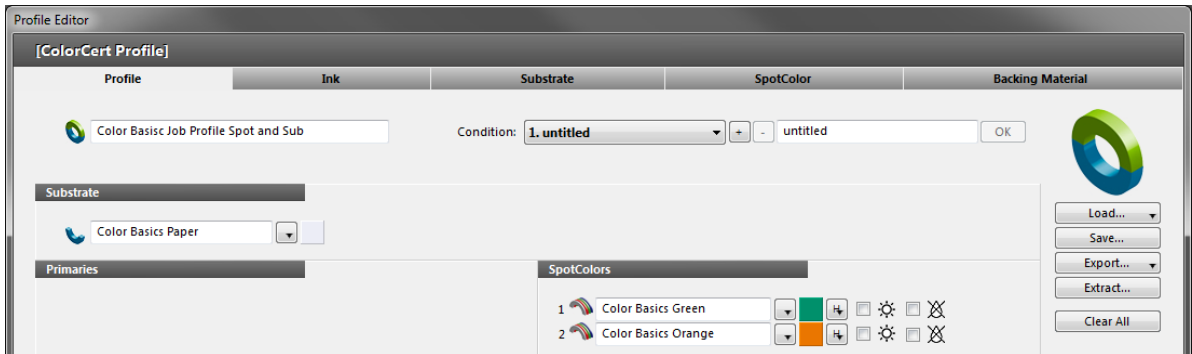
## Removed Requirements of Substrate and Primaries

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)



- Profiles with SpotColors and Substrate (no Primary required)



## 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:

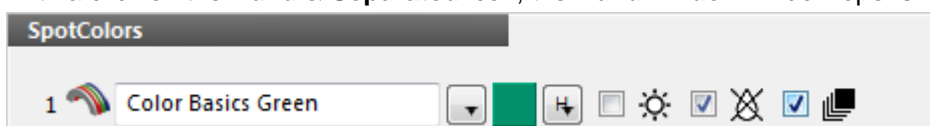


→ Real Ink



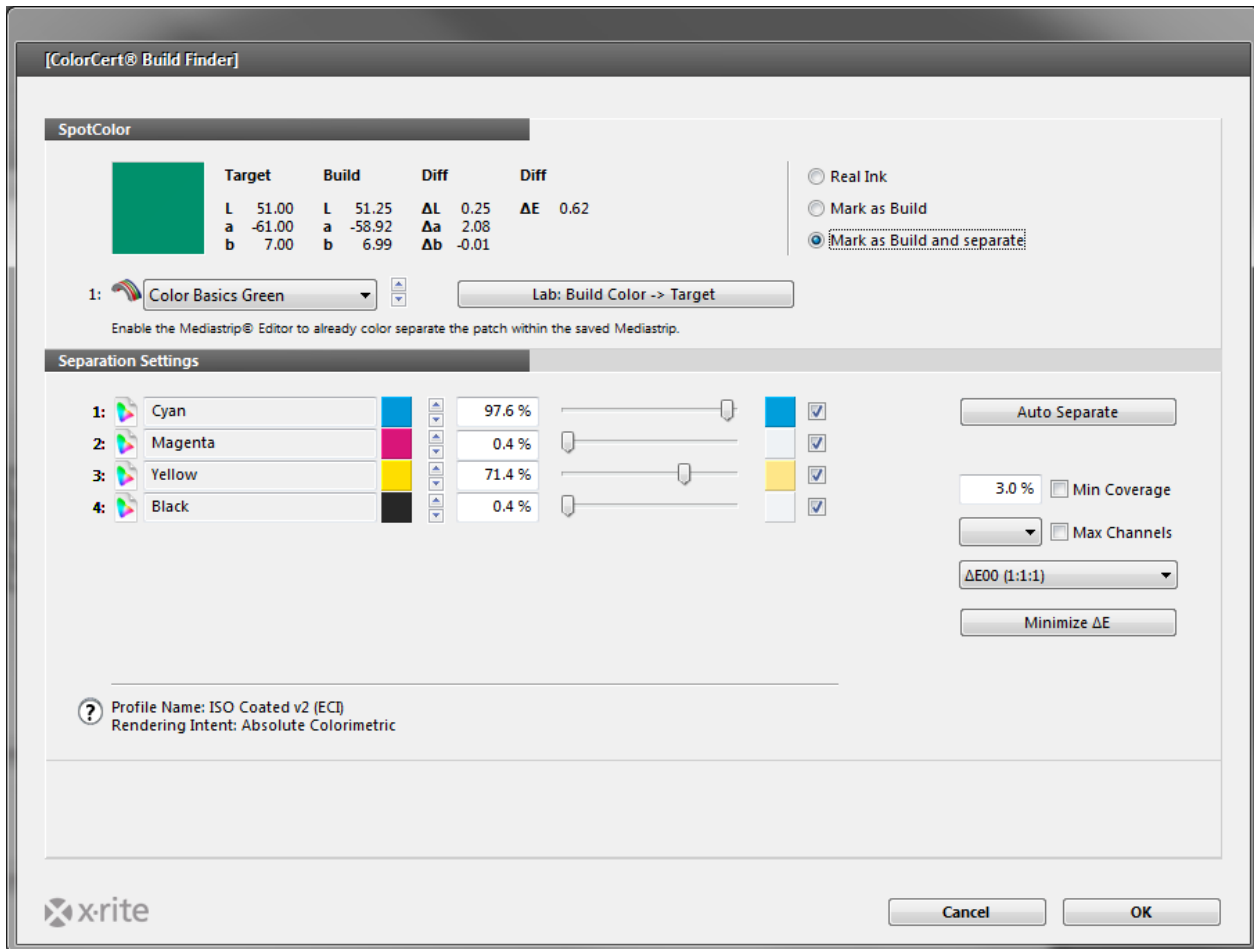
→ Build

With a click on the **Build & Separated** icon, the **Build Finder** Window opens:



→ Build & Separated

Select **Mark as Build and separate**.



- **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)
  - **Max Channels:** maximum amount of channels to be used for the build color
  - **$\Delta E$  Formula:** Select the formula for the calculation.
- Click **Lab: Build Color -> Target** to use the predicted build color values as the new SpotColor target.

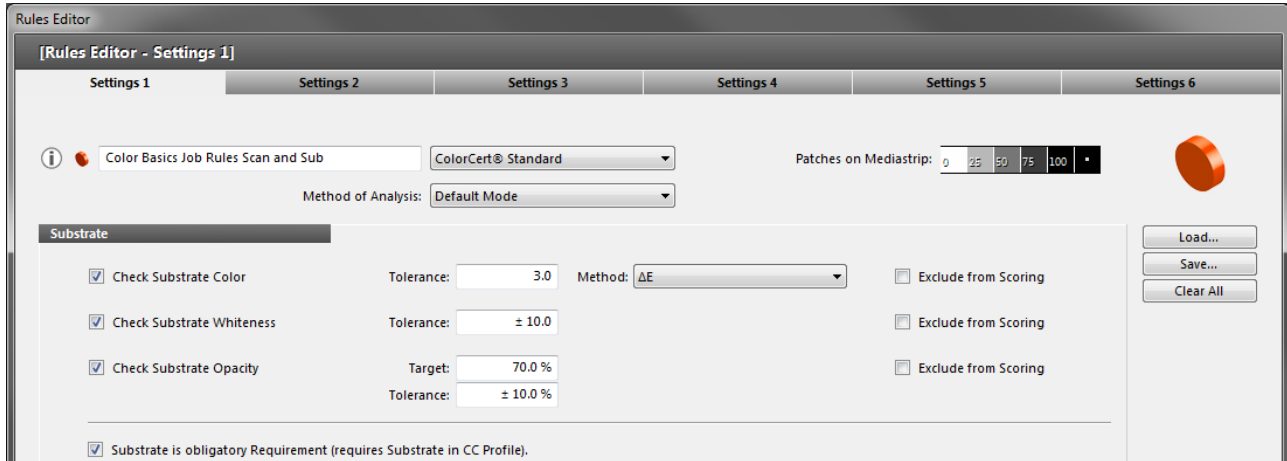
### Some important correlations to know:

- 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**:



- Select **Check Substrate Color** if you want to check the  $\Delta E$  value of the substrate in the Pressroom Tools. Define **Tolerance** and  **$\Delta E$  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.

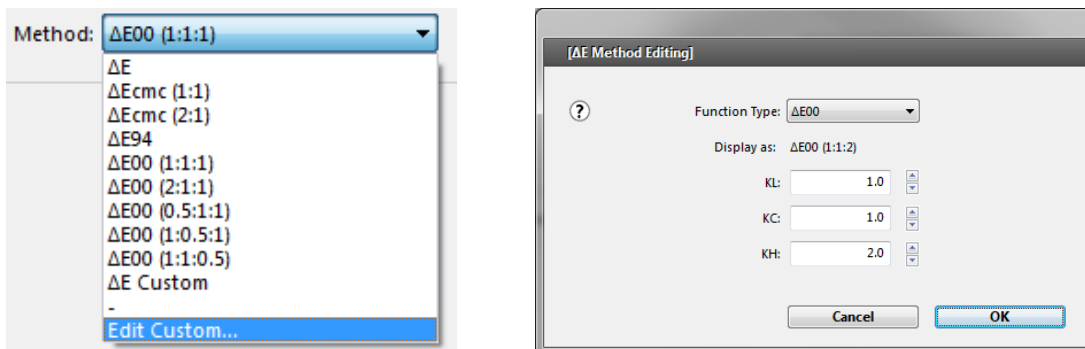
Profile			Rules							Pressroom Tools						
Substrate	Primary	SpotColor	Substrate	Substrate obligatory	Primary	SpotColor	Undertones	MinDot	Dot Gain	Substrate	Primary	SpotColor	Undertones	MinDot	Dot Gain	Density
x	x	x	x	x	x	x	x	x	x	✓	✓	✓	✓	✓	✓	✓
x	x	x	x		x	x	x	x	x	✓	✓	✓	✓	✓	✓	✓
x	x	x			x	x	x	x	x	*	✓	✓	✓	✓	✓	✓
x	x	x			x	x					✓	✓				✓**
x		x	x		x	x	x	x	x	✓		✓				✓
		x	x		x	x	x	x	x			✓				✓**
		x	x	x	x	x	x	x	x	Cannot be combined						

\* 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 ΔE Constants

Wherever you are able to select the ΔE method in the ColorCert Rules you can now define custom ΔE formula constants for ΔE<sub>CMC</sub>, ΔE<sub>94</sub> and ΔE<sub>2000</sub>.



The constants affect the ΔE calculation. For example ΔE<sub>2000</sub> 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.

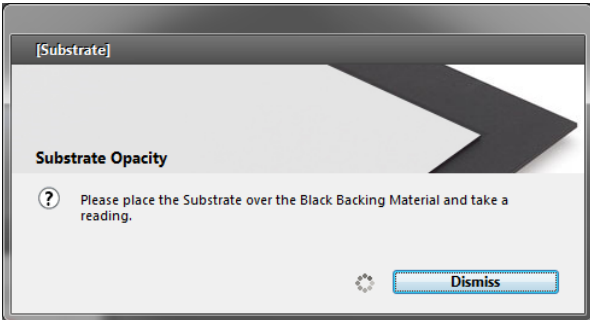
### Examples

- ΔE2000 (1:1:1)** All constants have the same tolerance. This is the usual ΔE<sub>2000</sub> formula
- ΔE2000 (2:1:1)** The lightness tolerance is higher than chroma and hue. Color differences in **lightness** are treated with **less importance**.
- ΔE2000 (1:2:1)** The chroma tolerance is higher than lightness and hue. Color differences in **chroma** are treated with **less importance**.
- ΔE2000 (1:1:2)** The hue tolerance is higher than lightness and chroma. Color differences in **hue** are treated with **less importance**.
- ΔE2000 (0.5:1:1)** The lightness tolerance is lower than chroma and hue. Color differences in **lightness** are treated with **more importance**.
- ΔE2000 (1:0.5:1)** The chroma tolerance is lower than lightness and hue. Color differences in **chroma** are treated with **more importance**.
- ΔE2000 (1:1:0.5)** The hue tolerance is lower than lightness and chroma. Color differences in **hue** are treated with **more importance**.

# Improvements in the Pressroom Tools

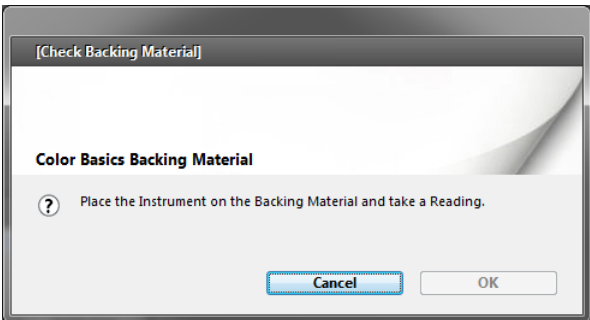
## Opacity Measurement

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.

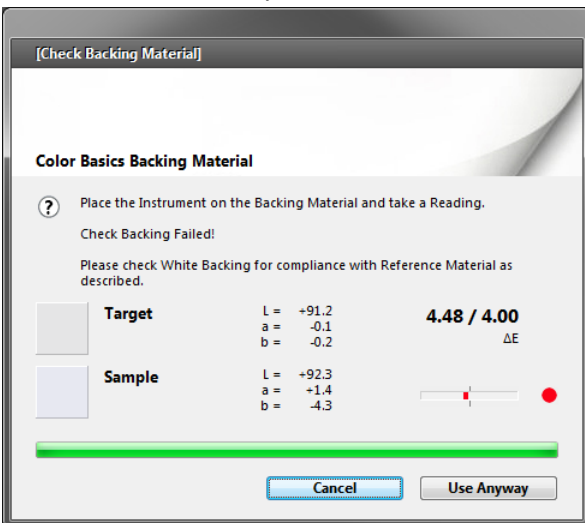
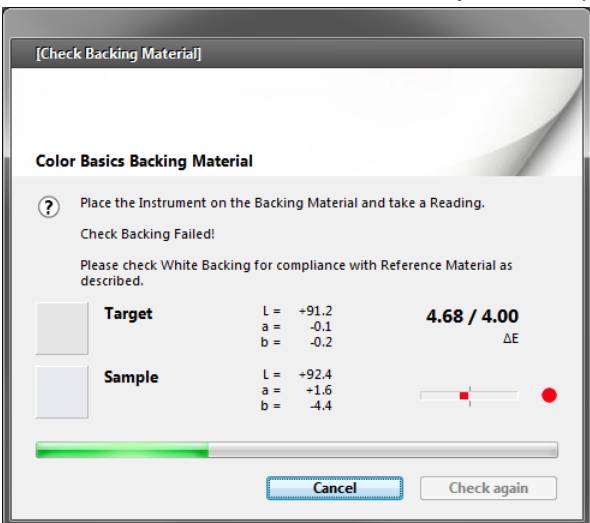


## Backing Material Measurement

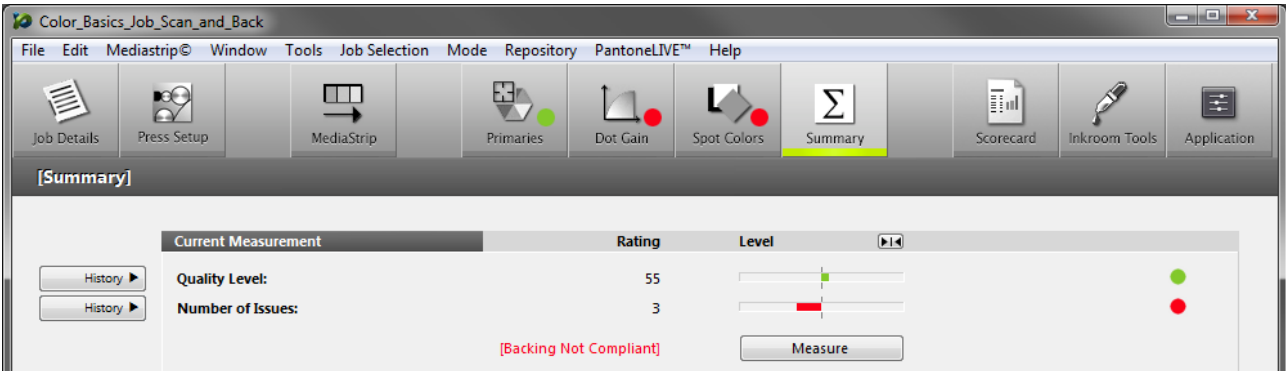
If the job requires a measurement of the backing material (Backing Material defined as target and tolerance in the Rules) you are asked to measure your backing material after your first measurements with the Measure Tool. You only have to measure it once per job but it can be canceled and activated with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



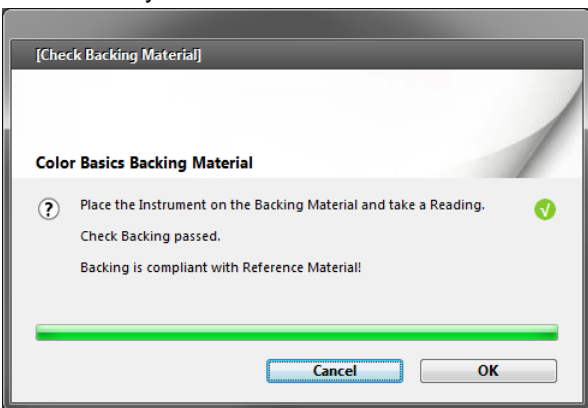
If the measurement is out of tolerance you can repeat the measurement up to three times:



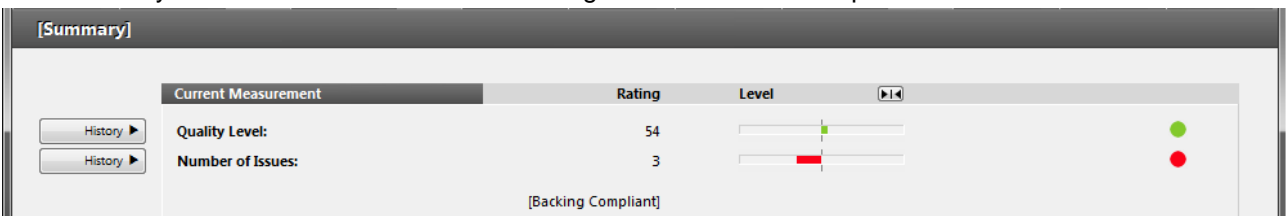
If you click **Cancel** or **Use Anyway**, the Summary tab will show that the last backing measurement is not compliant. Click **Measure** to start the measurement again.



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

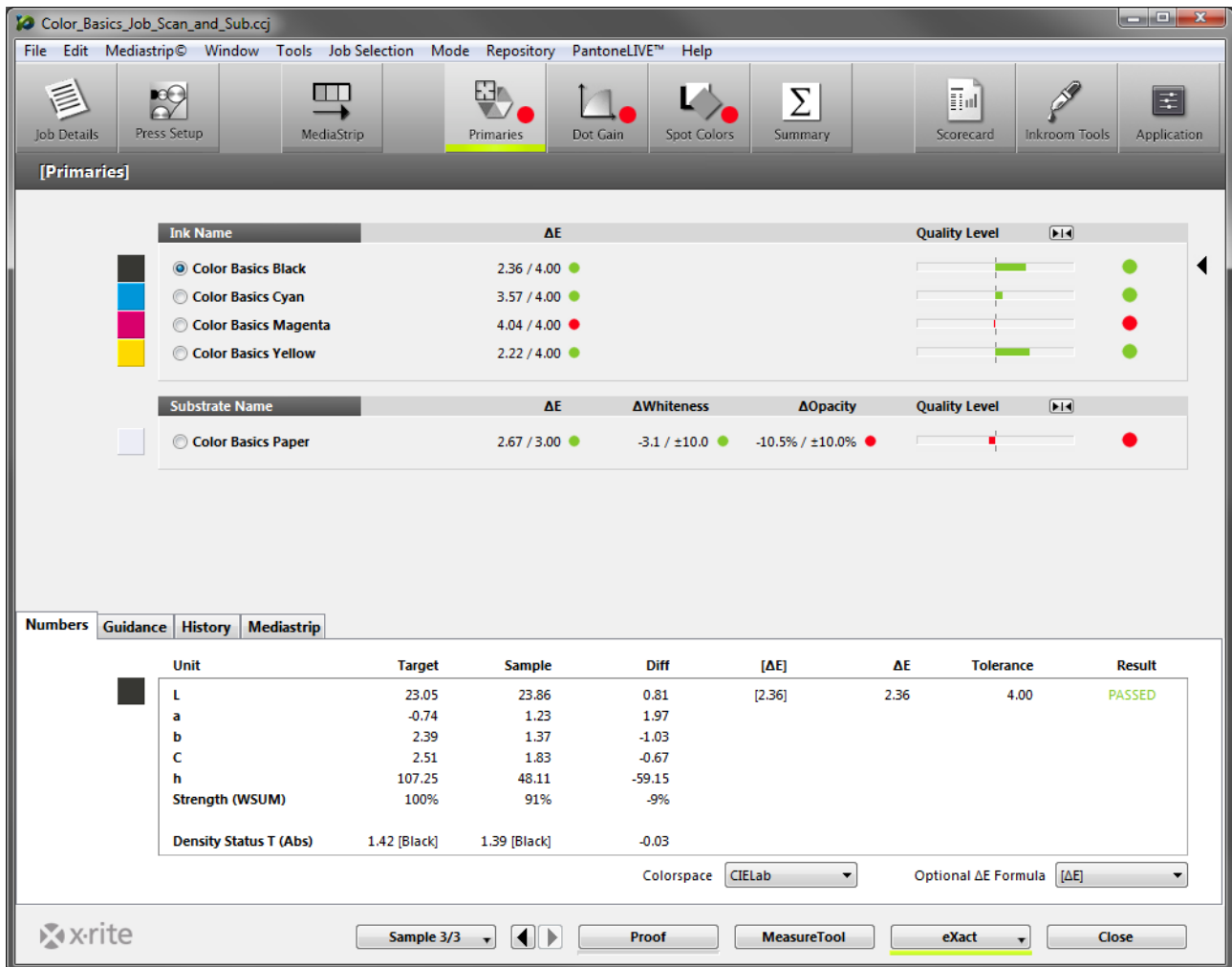


The Summary tab now shows that the last backing measurement is compliant.



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

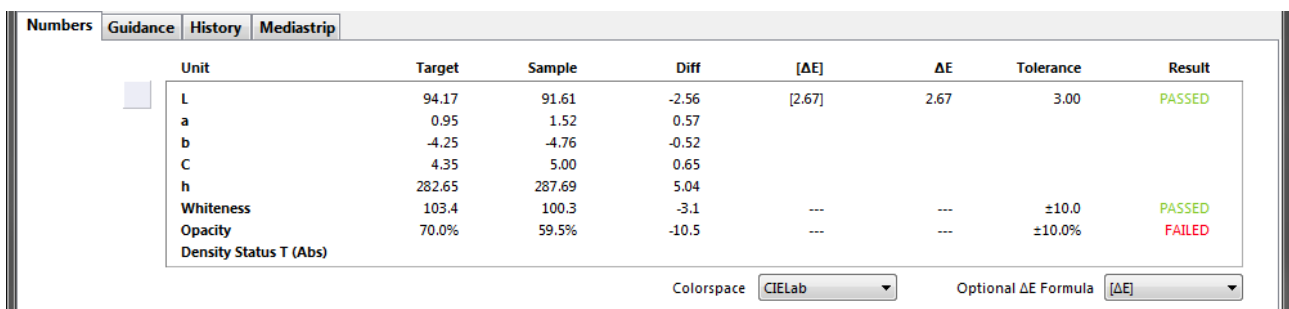
## Visual improvements



- 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 **ΔE** value, the **ΔWhiteness** and the **ΔOpacity** 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 **Δ** value is not displayed in the Substrate line, but the detailed values are displayed in the Numbers tab for analysis:





## 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.

