



Color Precision

Technical Solutions Through Expertise and Partnership

www.melrose-nl.com

Precision in Print:

How Spectrophotometers Help Deliver Color Consistency

Spot-on color isn't optional — it's expected. For every label, nameplate, and overlay we produce, clients count on us to get the color right the first time. But precision like that doesn't happen with great equipment alone. It takes disciplined processes, clear standards, and the right tools to keep color accurate and consistent — across every run, on every surface.

In this guide, we'll break down what makes color so tricky in print, and how tools like spectrophotometers help Melrose manage it with precision.



WHAT MAKES COLOR SO TRICKY IN PRINTING?

Printing isn't just about putting ink on substrate.
Color reproduction depends on:

- > **INK CHEMISTRY**
- > **SUBSTRATE:**
Plastic, metal, paper
- > **PRINT METHODOLOGY**
Digital, screen, offset, flexo, etc.

Each of these factors can influence color results and if not managed carefully can lead to costly reprints. But that's not all. Every device involved in the process – including color monitors, desktop printers, and even full production presses – can interpret and display color differently. As if these weren't enough variables to manage, there's another challenge. Human eyes are subjective!

Lighting, fatigue, and even mood can affect how we interpret colors.

So how do we measure color objectively?

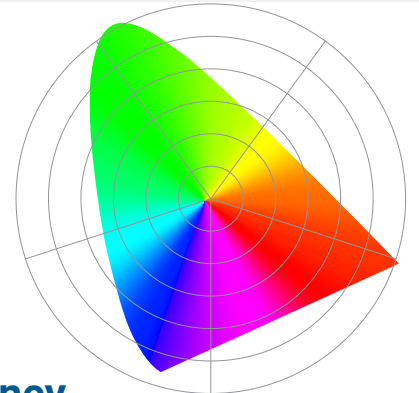
This is where color management systems become essential.

ENTER THE SPECTROPHOTOMETER

A spectrophotometer is a precision tool that measures how light interacts with a printed surface. It doesn't just "see" color — it analyzes the light spectrum reflected from the material and provides quantifiable color data.

In printing, that data is used to:

- Compare color samples to exact standards
- Track consistency from run to run
- Build accurate color profiles
- Ensure print jobs meet brand and industry tolerances (e.g., ΔE limits)



4 Ways Spectrophotometers Improve Color Consistency

- **Standardization & Calibration**
Use a spectrophotometer to create approved custom color profiles and measure against that from run to run. That means repeatable results, even across different machines or operators.
- **Real-Time Quality Control**
During production, measure printed samples with a spectrophotometer to ensure color consistency throughout the run.
- **Objective, Reliable Color Measurement**
Color differences are measured using metrics like ΔE , so you know exactly how close a print is to the target. No guesswork or debate about the color, decisions informed by the data.
- **Consistency Across Media**
Do you need to match a brand's colors across a range of substrates and processes? Spectrophotometers ensure colors meet the client's requirements and expectations for their critical brand colors.



OUR SPECTROPHOTOMETER

What Kind of Spectrophotometer Solution has Melrose Implemented?

Not all spectrophotometers are created equal. Here's what Melrose took into consideration before investing in upgrading our technology to the new Konica Minolta CM-17d Spectrophotometer:

> **Portability:**

Handheld for press-side checks or benchtop for lab precision? Melrose went with handheld to support flexibility and ease-of-use for our different print departments.

> **Setting the Standard:**

How will we determine Pass/Fail? With our new Konica Minolta CM-17d we are able to set a tolerance to the Delta E <2 value (D65) maintaining a standard that meets or exceeds print industry standards.

> **Reporting Capabilities:**

Does it provide a robust and easy-to-use reporting system for our operations team and clients? It's not enough to say your colors are good, the real value is in providing concrete metrics to customers supporting the results.



Final Thoughts: Why This Matters?

At the end of the day, what is most important to our customers is receiving high-quality parts on time. And tools such as Melrose's Konica Minolta CM-17d Spectrophotometer are only valuable if they help us deliver superior solutions. Accurate color from the start helps avoid unnecessary delays and added costs for our clients – and this tool plays a key role in making that possible. We believe in constantly investing in technologies and resources to ensure the continued success of our customers. And we're privileged to be a part of that shared success!

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