



## Understanding a Color-Controlled Workflow

Color management is a commonly misused term, often misleading and confusing the production environment. At its core, color management is simply a snapshot of a process condition once it is in a repeatable state. When a printer is seeking color management, they are actually embarking on a process of monitoring and controlling their manufacturing process. The thoroughness of this exercise will determine how well they achieve their goal. This is where the real work takes place. Fundamentally, there are three general phases on the road to a color controlled workflow.

The beginning phases of a color controlled workflow starts with the equipment optimization and calibration procedures identified by the manufacturers. All equipment that contributes to the workflow must be operating in its optimal calibrated state. The ability to measure this compliance will create a repeatable environment for day-to-day production. For a color-controlled workflow to be successful this calibration procedure must become a daily routine.

Phase two begins with what is commonly known as fingerprinting or press characterization. This is one of the single most important parts of a color-controlled workflow. At this point, we know that we can reproduce consistently calibrated printing plates, but we need to determine how those will transfer the ink films on press. Using a series of tonal scales along with a few other densitometrically measurable targets, we begin to identify how each color behaves under certain conditions. Once identified, we will create compensation curves for all four colors that will allow us to successfully reproduce color on a specific press or a specific set of presses. This is called densitometric press characterization.

In addition to adjusting the curves other press conditions like solid ink densities, mounting tapes and substrates are locked in as production standards. These contributors will then become standards for this specific condition for future production.

The third phase is the production phase. Now that we have identified our controlled press conditions, we are able to repeat what we have done by printing to the identified numbers. We will begin reproducing production jobs with control targets on them that reflect the standardized conditions that were set during phase two including specific ink densities and tonal values that are related to the anilox rolls, stickyback, and other press conditions measured and recorded.

These conditions can now be mapped in two separate methods for optimal contract proofing. The first method is by applying the adjusted press curves to the proofer engine. This, for many years, has provided a somewhat stable condition for contract proofing, but only provides about 60-percent to 70-percent color accuracy. The second method provides a much more consistent color reproduction through the measurement of spectral color information. Known as ICC profiling, the press now runs an IT8 target and identifies the three dimensional color space of the press. The ICC profile is then applied to the proofer engine allowing it to make additional adjustments to the hue of

the proofing inks thus matching the solid inks used on press allowing for 80-percent to 90-percent color accuracy.

So where is the missing 10 percent to 20 percent of color accuracy? The answer is simple. It lies in the hands of your human capital, the single most important asset you have on your production floor. It's every person within your company that makes a color controlled or color-managed workflow successful.

Success begins by creating a sense of ownership among your production personnel. Participation by everyone in the organization will contribute to the consistency of the system. Each person contributes to the manufacturing process, and is responsible for ensuring that their equipment is in compliance with the standards required to repeat the original conditions. The focus should be on educating production personnel on an overall understanding of the process, and equipment compliance rather than incremental pass/fail monitoring. If all the equipment in the manufacturing process is in compliance, and the conditions are functioning at the required standards, then the resulting print results will be color accurate.

