A TEXTBOOK APPROACH TO COLOR MANAGEMENT

WHEN ADVANCE PACKAGING WAS PRESENTED WITH A CHALLENGING PRINTING JOB, THE COMPANY INITIATED ITS TIME-TESTED METHODOLOGY TO ACHIEVE HIGH QUALITY RESULTS.

BY JACKIE SCHULTZ

There are only a handful of corrugated plants in the U.S. that are considered premier high graphics flexo post-printers. Advance Packaging in Grand Rapids, Mich., is one of them. The independent corrugator plant is a full service packaging supplier that specializes in brown box, multi-color flexo, litho label and digital print solutions.

The company began focusing on higher-end graphics packaging and displays about 10 years ago. Since 2008, it has won more than 19 design competition awards, including eight first place or gold finishes and one Best of Show.

The approach to printing is textbook. Procedures are documented, equipment is maintained, press operators and design personnel are trained, and industry suppliers are often consulted in order to control many of the variables in the printing process.
The Objective

One example of how these processes have secured Advanced Packaging’s reputation as a high graphics printer is a recent job for Sunset Tomatoes, a Canadian-based grower that distributes produce across North America. Most of the corrugated trays for the tomatoes are preprinted seven-color on kraft. The colors are white, black, cyan, magenta, yellow, spot blue and spot green. Advance Packaging post-printed and diecut the trays on its seven-color Göpfert Evolution rotary diecutter.

The images on the trays are clear, crisp and eye-catching and feature people and food. David Straten, Advance Packaging Director of Graphic Packaging, refers to the images as “memory” colors. “Generally, those are the most difficult things to print in all printing processes, and they’re especially hard on corrugated,” he says. “People know what a tomato, grass and sky look like, plus we needed to be as consistent as we could with the rest of this customer’s packaging because they’re huge in the marketplace and the Sunset logo is on lots of things. It’s printed on plastic and folding cartons and it all needs to look as similar as possible.”

The Challenge

One of the first things Straten does when he receives a high graphics job is examine the artwork with Brian VanderStel, Advance Packaging Graphics Specialist. He also often consults with Printron, the company’s prepress supplier in Neenah, Wis.

Straten’s team and the team at Printron knew the Sunset Tomatoes job would pose several challenges from a flexo post-print perspective. One challenge was printing process colors over white ink on kraft doublewall and then diecutting the tray inline. Sunset Tomatoes chose kraft rather than a white liner for its environmentally-friendly earth color appearance.

Another challenge was reconciling the number of colors with the number of print stations on the rotary diecutter. Although the Göpfert has seven print stations, the seventh station is dedicated to UV. Rick Pomerenka, Printron Sales Manager, says Advance Packaging thought it could run the job seven colors by replacing the UV with ink. However, the volume and repeatability of the job didn’t justify

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doing that, which meant they could only run six colors, but which six colors?

The Solution

Printron’s Image Optimization process determined what colors Advance Packaging could print with white ink on kraft. Pomerenko and his team knew that green and dark blue were going to be two callout colors. They also needed white, cyan, magenta, yellow and black, which totaled seven colors — one too many for the press.

Printron ran two tests to see how different the color gamut would be. The first test was white, black, cyan, magenta and yellow and the second was white, black, spot blue, magenta and yellow.

A crucial component of the color management process is the press characterization eliminating cyan and using a dark blue and once we had that information and entered it into the computer then we were able to separate and come up with the greens that they printed.

Using a spot blue in place of cyan affected the overall color gamut but didn’t change the process images enough to justify running the extra color. The final color sequence was white, black, green, spot blue, magenta and yellow.

The color they decided to eliminate was cyan. “That was going to limit us to the greens that we were going to be able to come up with in a process image,” Pomerenko says. “Dave and his crew went back on press and reran the press characterization eliminating cyan and using a dark blue and once we had that information and entered it into the computer then we were able to separate and come up with the greens that they printed.”

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A crucial component of the color management process is the press characterization. “It tells us what will happen with their ink set on their liner in exact duplication of what happens on their press,” says Jack Fulton, Printron Vice President. “If the images don’t look right we can edit them to make them look right, knowing that we can produce a proof that they will be able to reproduce on their press. That’s the whole color management circle of life. You start with the press and you end with the press. What we do in between makes it work when it finally goes back to press.”

New press characterizations are done if any part of the process changes, including plates, ink, anilox rolls or substrate. Advance Packaging runs press characterizations periodically to see if the condition of the press has changed. “We don’t have to do this every time we run a job,” Straten says. “This job was unique because it was on kraft with white ink and we were substituting a dark blue for cyan so it was a modified process. We run process here everyday, four shifts, seven days a week, but most of it is printed on white paper with cyan, magenta and yellow and we do a characterization maybe once a year or every few years to gather that information and we can use that over and over.”

As part of the initial tests, Advance Packaging ran the job at four different line screens — 55, 71, 87 and 110 and settled on 87. “110 looked great, but in production mode running two-out, on a 32- x 63-inch sheet, averaging 7750 sheets an hour, and we were running a lot of these, 87 would be a production friendly line screen and it still looked really good,” Straten says.

The Tools

Another important component that allowed Advance Packaging to successfully run this job was the Göpfert Evolution’s configuration. For the Sunset Tomatoes job, the press had Printron Quantum Digital .107 thickness printing plates, JB Machinery infrared dryers on all print stations and Pamarco anilox rolls. For the white ink a heavier 250, 8.0 bcm cell volume roll was used. The press operators ran the process colors, including the spot blue, with 600, 2.9 bcm rolls, and the spot green with a 320, 5.0 bcm roll.

Advance Packaging is meticulous about the care and use of its anilox rolls. “I use the same process black anilox roll with the press characterization eliminating cyan and using a dark blue and once we had that information and entered it into the computer then we were able to separate and come up with the greens that they printed.”
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all the time, and we take care of them,” Straten says. “We have a process so that the cell volumes never go below 75 or 80%.”

Pomerenka points out that this is where some companies fail in their printing processes. “They will put the ink and the anilox rolls in, but the rolls aren’t marked. One time roll No. 4 is running black and the next time roll No. 4 is running yellow. If you have some residual black pigment in that roll it will stain and change the color of that yellow ink and you won’t be able to match the proof.

“David’s black process roll is marked. They run black on that roll all the time. The cyan, yellow and magenta are the same way.”

The ink was from Color Resolutions (now American Inks and Coatings). Some of the white ink was from Zeres. Container Graphics supplied the cutting dies.

The Documentation

Because there are so many variables in printing, Advance Packaging documents everything in order to reproduce the same jobs consistently. “We have a lot of processes in place here for maintaining our aniloxes, hue angles, densities, viscosity, pH of our inks, and the paper. You have to try to duplicate all those things as much as you can. If you change anything, that can throw a wrench into everything,” Straten says.

“Those are the things that most people have a difficult time doing and don’t want to take the time to do, but the rewards are huge and you will be able to print quality consistently. People pay a lot more money for graphics than they do a brown box.”

He says corrugated converters that run primarily brown boxes sometimes attempt to print higher-end graphics. “That is a disaster without some knowledge. I’ve seen that happen. Sometimes they buy ink and when the magenta comes in it’s not even the right color. We use ISO hue angle, single pigmented inks and we use the same ones every day and check them with spectrophotometers every day, every half hour.”

“That’s why it works,” Fulton adds. “Some people get a new press and do a press characterization and run a job and it matches and everyone is happy but they have no process so they can never repeat it. They did something but they have no idea what they did. All of these parts have to be optimized. Only then can you be successful and repeat it.”

The Reward

The Sunset Tomatoes box received a Silver award in the 2015 FTA Excellence in Flexography competition in the Corrugated Flexo Direct Print Process category.

Fulton says companies should receive awards for the process and not just the printing. “Everyone looks at the printing, which is great, but it’s the process that got it there. It’s the process that lets you run it over and over and have it look the same. This is color management 101,” he continues. “This is the way it was designed to work and the way it works best. We wish there were more people that would follow that design exactly but they don’t. If you have control of your process the way they do at Advance Packaging, color management works and this is proof of that.”

Straten emphasizes that success is a team effort. “A lot of people and a lot of companies should get credit for this. I surround myself with excellent people and that includes my vendors. You also have to have the support of management and that’s a big one because a lot of companies lack that.”