When Rick Shadle visited some of Shop-Vac Corp.’s largest customers, such as Lowe’s and Walmart, about a year ago, he was assaulted by what he calls “a carnival of colors” in the aisles that featured his company’s products. “We were seeing a lot of big variations. There could be five or six different shades of the same color, even blacks, in our corrugated packaging,” said Shadle, director of creative services for Shop-Vac, a privately held manufacturer of consumer products and industrial air-moving equipment with headquarters and main assembly plant at Williamsport, Pa. “We had to do something because color consistency in your packaging reinforces that you are a brand.”

After launching a program that uses data supplied by color measurement instruments from X-Rite Inc. in his supply chain, Shadle sees nothing but “Shop-Vac Red” when he returns to those same stores today.

In addition to improved quality, Shadle finds that he has more time for valued-added tasks now that the color control program is under way. Instead of fielding up to seven complaints a week on color quality internally, Shadle said he might have to handle one color-matching issue a month.

Over the past 50 years, Shop-Vac has established a reputation as a global brand leader of wet-dry vacuums, with a specialty in the design and manufacture of consumer goods such as shop vacuums, leaf blowers, industrial vacuums and air moving equipment. It has distribution and manufacturing facilities in North America, Europe, Asia and Australia.

Shadle discovered that with a number of corrugators spanning four states, using perhaps a dozen ink suppliers with different formulations that, “there are a dozen different opinions on what PMS 186 red is.”

To remove opinion from the process, he turned to X-Rite Inc., a leading designer and manufacturer of color measurement instruments and software. On the technical side of formulations and printing processes, Shadle found help through BCM Inks in Cincinnati. “We contracted with BCM to help us with our color control program, and the first thing that they asked was, ‘Do you have X-Rite?’” Shadle said. “I answered: No, we have some bright lights here and that’s about the best way we have to judge color for packaging.”

BCM, which specializes in formulating high-intensity, water-based flexographic inks for printing in the corrugated industry, recommended that Shop-Vac use a X-Rite spectrophotometer to precisely measure the color of random samples of packaging shipments. Shop-Vac decided on a X-Rite 939 spectro that is well-suited for ink room and quality control applications and can be calibrated over the Internet using set standards and special software.
BCM then visited all of Shop-Vacs corrugated vendors to get samples of their packaging liners and developed standards that included formulas and information that any ink supplier would need to replicate specific colors. To make the color control process more robust, BCM suggested that the vendors also obtain X-Rite spectrophotometers.

“We had to take the guesswork out and let the machines do the work for us,” Shadle recalled. “I told the vendors that I wasn’t going to force them to purchase X-Rite or other color gauging equipment, but if they didn’t have the equipment, it was going to be a crap shoot.” A majority of the dozen vendors now have X-Rite or other color measurement equipment.

X-Rite representatives explained and demonstrated the equipment and passed along the names of customers that were using the instruments and software for similar applications.

Shadle said he assembled color swatches and other reference materials into a color control binder that he gave each corrugated vendor. Shop-Vac assigned unique company names to each of the specified colors.

The program asks for color measurement readings at the beginning, the middle and the end of a press run, and the data is e-mailed to Shop-Vac, where it is reviewed and retained for future reference. When a shipment of corrugated packaging comes in, Shop-Vac technicians pull random samples and take an average of five measurements per sample with the X-Rite spectrophotometer.

Shop-Vac initially set its tolerance at 3 delta E*, where 1 delta E* can be said to represent the smallest value for which an average observer can tell the difference between colors. “A lot of people told me that 3 delta E is pretty forgiving, but we figured that since we were getting into this we might as well be easy to work with,” Shadle said.

Having seen substantial progress with its first tolerance, Shop-Vac asked its corrugated vendors if they could be 2 delta E*. “At first there was hesitation by some of our vendors, but surprisingly the corrugators that purchased the X-Rite equipment said they were completely amazed by the tools and said they would give it a try,” he said. “Some of the vendors told me that they were able to pick up business because they told prospective customers that they were using X-Rite.”

Shadle said it took about six months of experience and practice to get the program operational. Some corrugators asked to use up their inventories of old inks before purchasing new inks to meet the new requirements, and it took time for everyone to work through questions as they arose.

Shop-Vac is now looking to set standards of color management in its offset, lithography and plastic poly bag printing. “Now that we have gotten the color so good on the corrugated, we are seeing the inconsistencies from vendor to vendor on the spot labels and accessory cards,” Shadle said.

*Disclosure: Matthew Gryczan was contracted to write this article by X-Rite Inc.