KLE: A Colorful Past, A More Colorful Future

Tony Stramondo, owner of KLE, a toner manufacturing company, is passionate but practical. Having been involved in the imaging industry for more than 35 years, Stramondo has been a part of every major trend and techno-logical development in laser printing. So when this industry veteran says he is committed to color toner and laser print-ing, others in the industry should pay attention.

Stramondo believes the future of his company, and perhaps the imaging indus-try itself, lies in color toner and laser printing. He has good reason for saying this - color toner represents approxi-mately 80 percent of KLE's steadily climbing sales. Of that 80 percent, 60 percent is the traditional pulverized toner, while 20 percent is polymerized toner and the remaining 20 percent is sublimation toner, a relatively new production area for KLE.

The KLE staff poses for the camera in front of the Jupiter, Fla., headquarters.

Stramondo speaks earnestly about KLE's strides in pulver-ized and polymerized color toners, and his voice fills with excitement when he talks about color sublimation toner.

"Sublimation toner is a good business to get into; it's a growing area for rechargers," he said. "Basically, customers can use any kind of printer out there to generate sublimation toner products. And you can charge about $295 for a refilled sublimation toner cartridge - about $200 of that is profit. In a regular toner cartridge, you might make $10 profit."

He predicts that sublimation toner, used to print on metal, plastic, tile, fiberglass, wood, ceramic and an array of other materials, will eventually become his company's best-selling product. "It is not something that is just on the surface," he said. "The toner actually impregnates the material with no evi-dence of a lip or relief."

Commercial printers are the largest users of sublimation toner, using it to print on everyday items such as T-shirts and license plates. "They can print just about anything - tiles for murals and trophies. Trophies are no longer engraved; they're printed," Stramondo said. "You'll have to look closely, but you'll be able to see it. You can also see that people are now starting to print regularly on metal, too."

Speaking of sublimation toner, Stramondo explained the process. "The ink goes onto a transfer paper, and the paper gets placed onto the object. It is then imprinted onto the medium by heating the transfer paper to about 350 degrees anywhere from 10 to 36 seconds," he said. "When you apply heat to it, the toner starts out as a solid, becomes a gas, and then a solid again once it is applied. Because there is no liq-uid state, it doesn't bleed. It's also very difficult to scratch. Sublimation toner is innovative and very practical."

Stramondo's advocacy for toner is obvious, and he is equally fervent about the benefits of laser printing over inkjet printing. "The cost per copy using a laser is about one-tenth that of an inkjet. Laser printers also print dry, and the paper doesn't run if you get it wet. When you print a full page with inkjet, it becomes rippled and looks like you dropped it into a puddle," Stramondo said. "Toner is also cheaper if used in large quantities, and because toner is pigment-based instead of

dye-based, the color will not fade when exposed to ultraviolet like an inkjet print.

"There's a lot of hype right now about inkjets because OEMs are essentially giving away inkjet printers for free," he explained. "But in the long term, we will see it going back to toner and toner's emphasis on color, color, color. If you look at the cost of printers, you can buy a color laser printer for about the same as a monochromatic printer. I would say that in a few years, there won't be any monochrome laser printers left on the market, and you'll be able to buy a color laser printer for around $100. The OEMs don't want to sell monochrome anymore. Why should they sell a machine with one cartridge when they can sell you one with four?"

Demonstrating his support for laser printing, Stramondo first tackled the subject of cost. "I read a recent issue of *Consumer Reports* where they compared laser printers and inkjet printers. They concluded that it costs the average user about $1.50 per print when using an inkjet for a full-color, 8-by-10-inch print. Laser will run about 10 cents for the same thing. Then you have to use the fancy photo paper; that's about 50 cents per sheet - another cost you have to factor in. For the laser, you can use the cheap white paper that you can buy in bulk from Costco or Sam's Club, and it comes out great. A laser printer costs 10 to 50 times less in the long run than an inkjet printer. It doesn't take long for the printer to pay for itself."

As the *Consumer Reports* experiment proved, laser printers save people valuable time. "For an inkjet, a full photo took about five minutes. On the laser printer, it took 17 seconds," Stramondo said. "Because the laser printer prints line by line, there's less information for the printer to have in its memory and so it prints faster. One laser printer, when networked, can do the job of 25 inkjet printers in terms of speed. Laser is so much more practical in every aspect."

Stramondo also noted the long-lasting effects of color toner. "I remember being at the *Recharger* show during Sept. 11, 2001. When I got back to the shop, I printed American flags like crazy using laser and inkjet printers so people could put them in their car windows. The colors in the laser printer came out better and sharper," he said. "Here it is several years later, and I have the same flag printout in the back of my car window bright as ever. These colors don't fade."

While he is proud of the colors in his printed flag, Stramondo is equally proud of the range of colors in his inventory. KLE offers a complete stock of both color and black toners for a variety of makes and models.

"We have more toner than anyone else in the entire industry. We make toner for a couple of hundred different models, and at four colors per model that's about 2,000 toners. We always keep them in stock. We try to forecast buying trends to

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make sure we have inventory at the time when people need it, and if we have to, we can make batches up quickly. We monitor it so when we get to a certain level, we automatically know to make more."

Maintaining these high levels of inventory, however, requires careful planning. "Some parts we make here, some parts we license others to make for us. Quite frankly, to make four different toners for a couple of hundred printers would take a long time, years even," Stramondo said. "It's typical of toner manufacturers. Even OEMs like Canon and Minolta have manufacturing partners; they don't make any of their own toner. A lot of people make it for them. It's too large of a commitment for even the large operations to make those kinds of volumes."

KLE's decision to parcel out segments of its manufacturing program is also part of a larger production strategy.

"What if our own manufacturing equipment breaks down? We know we're getting products from multiple sources, and that's how we ensure we get the inventory coverage we need. We supply in bulk, so we have to think about that," Stramondo said, confirming his company's practical production program.

While it may make some manufacturers nervous to relinquish even a small amount of control, KLE remains confident in the quality of its toner. "We test all incoming products that these companies make for us," Stramondo said. "We test the toner on the laser printer itself. We look at how many grams of toner go onto the paper per print and per 100 prints - we do the whole cycle. We then check for things like melting point, blending point and that sort of thing. We look at how much toner goes into the waste section, and we look at transfer efficiency. We try to make our transfer rate at least 80 percent plus or minus 1 or 2 percent to that of the OEMs. Basically, we look at everything."

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Proving the integrity of its color saturation is the biggest benchmark KLE needs to reach to assure the quality of its toner products. "We use a densitometer to check the color density of the particles before and after the heating process because some of the resins tend to change color. Then we look at color saturation - reds, greens, yellows and blues - and ask ourselves how much saturation is in each of these colors. We match those levels to the OEMs, too."

But talking about matching the OEMs, particularly in the area of formulation, is easier said than done. "Making toner is like a black magic art," Stramondo joked. "If the barometric pressure and humidity are just right, a toner's characteristics can change. It's a black art because the results can come out differently in different regions around the world." The key to adapting to these environmental variations, he explained, is by mixing in additives.

"That's why people have post-additives mixed into their toner. Sometimes you have to put these additives in to make sure the products have a consistent performance where the end user lives. Without them, the printer can create rough-edged or lined prints. Sometimes we add or subtract additives depending on where the toner is shipped.

"If you look at the printers, some of the instructions recommend operating them between 20 percent and 80 percent humidity, and between 45 and 110 degrees Fahrenheit. There are adjustments that also need to be made for altitude. For example, for a Minolta 2500 there is a setting for printing at high altitudes, and the temperature inside the printer adjusts," Stramondo explained. "What happens is that in different climates, the printer will treat the toner differently. If you go to Denver, the altitude is high but the humidity is 3 or 4 percent, and the printer is designed to operate at a minimum of 20 percent. We make changes to the toner, and sometimes the printer, too. We try to get the machine to do most of the compensating, and many of them can because they're designed that way."

Stramondo knows all about printer design; he once was an OEM and designed all of his own machines. He has also worked for a variety of aftermarket companies has seen both sides of the printing market. With graduate degrees from the University of California and Massachusetts Institute of Technology, he entered the imaging industry in 1969, working for the U.S. government in holography and developing laser research.

"In the early 1970s, I went to work for Itek Corp. and designed a laser printer that would print spy satellite data. The idea of using laser printers derived from the fact that they were using high-definition film then, and to print material

using a dot-matrix printer would require an entire room just to print a single photo," Stramondo recalled. "We saw that the laser would let them print a 1-micron dot-size image, and so we designed it. We were able to do this in part because we used laser diodes, even though we were told by the Japanese manufacturers we couldn't do it."

He began working for Datagraphics in 1974 where he designed a laser scanning system for microfiche. Four years later, Stramondo designed the first desktop, plain-paper laser printer, where, for the first time, "the controller scanner and the workers were inside the machine." It was about the size of a modern office copier.

"I did this about eight years before Canon or HP came out with theirs. In fact, they both came out to our facility to check it out; they couldn't believe we could print in such a small target area. Well, not just Canon and HP, but Minolta, Honeywell, Konica, Epson - all the major OEMs. They took pictures and went back to their facilities and made up copies of their own."

In 1980, Stramondo joined General Optronics and "created a desktop, plain-paper laser printer that could print 34 pages per minute, putting me ahead of HP." HP came out with an eight-page-per-minute version in 1983. Word spread about Stramondo's invention, and he consulted with QMS and sold his technology to others who were trying to enter the laser printer business.

In 1983, he tested his entrepreneurial skills and opened a printer business, Office Automation Systems (OASYS), in San Diego. "We produced a laser printer as an OEM and sold our machines under our own brand name, OASYS Technology. We also manufactured printers for companies like Kyocera, Minolta, Memorex, NEC, Troy, Ascribe and Sperry, and competed with HP directly at that time.

"We stopped manufacturing printers in the mid-1990s because we could not compete with the Japanese companies. They were selling printers for less than we could make them. That's when we switched to the supplies business," Stramondo said. "We then started making toner for a company called Laser Master in the early 1990s - they made a high-end laser printer with a high-end resolution. We saw how successful that was and decided to focus selling supplies to the aftermarket," Stramondo said.

Stramondo retired from OASYS' board of directors and opened Laser's Edge in 1986. There he sold printers and supporting supplies as an OEM under his own Laser Pro brand. In 1990, he helped to develop the dianippon OPC drum for the SX laser printer and establish a side company called K-Tech.

In 1989, Stramondo decided to merge both K-Tech and Laser's Edge. The result was KLE. He began manufactur-

KLE will quickly make fresh batches of toner, if the inventory isn't already available, to accommodate an order of any size.

ing toner, compatible laser cartridges and printer supplies as he phased out his company's printer production. "At one time, we were selling toner for every kind of printer out there but determined we would rather be in a specialized market, which includes color toner, sublimation toner and security toner often used in government applications."

KLE's initial venture into color toner was successful. The company was even contracted to manufacture color toner for some European OEMs. Then another company introduced a color toner that "failed miserably," Stramondo recalled. "That problem set even our own company back. We had to reassure people it was just that company's toner, not all toner. We had to reintroduce the idea of color toner back to them. For us, it was a real step backward."

Stramondo's concerns about quality in the early days have shifted to current worries over patent infringement. "There are always concerns about toner formulations, especially

with the pulverized toner. Some of it is highly protected by patents, and we create a hybrid toner with chemical dispersion. We also do a final grind to come to up with spherical-shaped particles to get around the patent. Sometimes we have to come up with a completely new formulation so we don't have to worry about patent infringement," he said.

Looking ahead, Stramondo is focused on legal challenges and OEM lockout maneuvers, and forthcoming technology. "There's talk about a paper coming out that has LCDs built into it, but that's years down the line - maybe 30 or 40 years from now. People wouldn't need ink or toner," he said.

"No ink, no toner … well, I'll be long gone by then."

And for maybe the first time, Tony Stramondo realized that one day there may be an evolutionary step in laser technology in which he won't play a role. ▣

Contact KLE at (561) 743-0636, (800) 866-3799 or visit www.colortoner.com.

KLE conducts print tests and gauges how many grams of toner go onto the paper per print and per 100 prints.