



The J.M. Perrone Company Toxics Use Reduction Case Study Computer-to-Plate Printing Eliminates Need for Chemical Processing

Summary

The J. M. Perrone Company, an integrated printing and direct mail marketing firm, discovered that the technology of direct Computer-to-Plate (CTP) printing eliminates the need for prepress chemistry and removes the environmental hazards and costs associated with conventional film processing. Before making the change, the company purchased and used 205 gallons of chemicals at a cost of \$1,595 per year. The company also disposed of 2,730 pounds of hazardous waste at a cost of \$9,469 per year. In total, the company saved over \$11,000 per year in material and disposal costs, \$80,000 from the elimination of silver-based film and increased efficiency in their printing process lowering production time from 2 hours to 45 minutes - an estimated savings of \$31.50 per hour.

Background

The J. M. Perrone Company ("Perrone") is an integrated printing and direct mail marketing firm located in Hingham, Massachusetts. The 20-year-old company employs 125 people at their facility. Perrone's production services consist of creative services (transferring a customer's concept into a graphic design) and printing of envelopes, mailers, catalogues, brochures and flyers. In addition to the printing activities, it also has data and mail processing services.

The management at Perrone determined that its conventional, film-based prepress operations had high overhead and extremely labor-intensive operations, and was also looking for toxics use reduction opportunities. To address these issues and jumpstart its production processes, Perrone felt that becoming all-digital could lower their overhead and payroll costs while improving employee safety, product quality, and turn-around time. Early in 2000, the company began a preliminary program to move towards CTP technology.

Toxics Use Reduction

In today's prepress world, instead of cutting and pasting articles by hand, entire publications are now produced on a computer, complete with artwork and graphics. Columns can be displayed and arranged on the computer screen exactly as they will appear in print, and then printed. With newer, less expensive systems that fit the demographics of smaller printing plants, Perrone felt that CTP was cost effective and, with certain systems, environmentally friendly.

During the needs assessment phase, the major CTP systems available were studied. The company decided on the Presstek Dimension 400™ CTP imaging system, which the organization felt was the price and performance leader in the small to mid-range class, and could be adapted to the current plant configuration. The Dimension™ Series of CTP systems are based on integrated thermal imaging technology. Also, the fast imaging speeds and high-resolution output improved pressroom productivity by automating key steps and eliminating many time-consuming prepress procedures. Additionally, Perrone decided on running Presstek's Anthem thermal anodized aluminum plates.

The Anthem is a positive-working subtractive plate. This means that when imaged by the CTP imaging system, the non-image area is removed from the plate surface and captured in the air management system. A residue of black carbon is all that remains on the plate, which is then rinsed off with water in the final wash step. On press, the Anthem plates require approximately 10% more water on startup only when compared to conventional plates because of their design. Once running, they act like any other plate, plus they hold a superb dot. The plates transfer inks to the blanket very well, and can easily control dot gain by setting a curve specifically for each unique press.

With CTP, making a new plate is much more efficient. It only takes about four minutes to image a new plate, regardless of size, with CTP because there is nothing between the plate and the laser – everything fits exactly. Perrone found that print quality also improved. Press employees noted that when using CTP to image digital plates, the 175-line is sharper compared to a conventional 200-line film-based workload.

The CTP system is completely chemistry-free and enabled the company to reduce materials costs, increase efficiency and eliminate toxic waste from the prepress process. The new process eliminates the generation of waste material up to the final step of printing. Film and chemical processing are eliminated because the plates are non-photographic; therefore disposal problems and costs associated with heavy metals are gone.

Results

Reductions:

Both traditional film processing and plate processing involve hazardous substances, however the CTP system that Perrone is using is completely chemistry-free. By using this technology, Perrone eliminates the use of film and associated toxic materials (film fixer, film developer and plate developer) in the prepress area and creates a safer working environment. The company reduced the amount of chemicals used by 205 gallons per year and reduced hazardous waste by 2,730 pounds.

Economics:

With a typical payback measured in months, not years, moving to chemistry-free CTP made sense for Perrone. When the company switched to all digital they realized immediate savings in a number of areas. Most obvious was the annual savings of \$80,000 attributed to the elimination of just the silver-based film, including not only the final film but also the intermediate films. CTP eliminated all of the extra steps and opportunities for human errors to occur. With the elimination of film, also comes the elimination of conventional stripping. Projects that took two hours to produce in a film-based operation now take 15 minutes, for a labor savings of \$31.50 per hour. The cost of the Anthem plates has worked out to be the same as that for conventional plates. The company is also saving about 65 percent in costs of outputting digital proofs as opposed to analog film proofs.

The Perrone Company eliminated all of its chemical prepress waste saving \$8,000 immediately. The creative area also eliminated its use of chemistry, for the combined total mentioned above. The company is rid of the burden of both buying and disposing of the harsh chemistry needed to strip and plate a job conventionally.

This case study is one in a series prepared by the Office of Technical Assistance (OTA), a branch of the Massachusetts Executive Office of Environmental Affairs. OTA's mission is to assist Massachusetts facilities with reducing their use of toxic chemicals and/or the generation of toxic manufacturing byproducts. Mention of any particular equipment or proprietary technology does not represent an endorsement of these products by the Commonwealth of Massachusetts. This information is available in alternate formats upon request. OTA's **non-regulatory** services are available at **no charge** to Massachusetts businesses and institutions that use toxics. For further information about this or other case studies, or about OTA's technical assistance services, contact:

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