

Use of Plastic Blast Media to Clean Press Parts

By Dale Patterson, President of Absolutely Micro*Clean, LLC.

The flexographic packaging industry has made great strides in reducing the total amount of solvents consumed and emitted into the atmosphere. The reduction in the amount of volatiles in solvent inks and the conversion to water-based inks have allowed many companies to grow while reducing their overall emissions. Regulations have dictated the need for solvent-capture systems that are costly, but also greatly reduce total emissions. (See editor's notes at the end of the article.)

Solvents and soak tanks are still common in packaging for cleaning press parts such as ink trays, pumps and buckets. However, a new blasting technology uses a unique plastic media to eliminate the need for harsh chemistries and soak tanks. Using this technology, several companies have greatly reduced chemical expenditures, disposal costs and operator exposure to the corrosive chemistry.

Alliance Packaging (formerly Flex Pack) in Sacramento CA, has taken advantage of the parts cleaner shown in Figure 1 to clean ink pumps, pans and other press components. Alliance's Lou Figuera estimates they have cut the consumption of cleaning chemistry in half, resulting in savings of about \$500 per week. Use of ammonia, various soaps and pH conditioners have been all but eliminated using the parts cleaner.

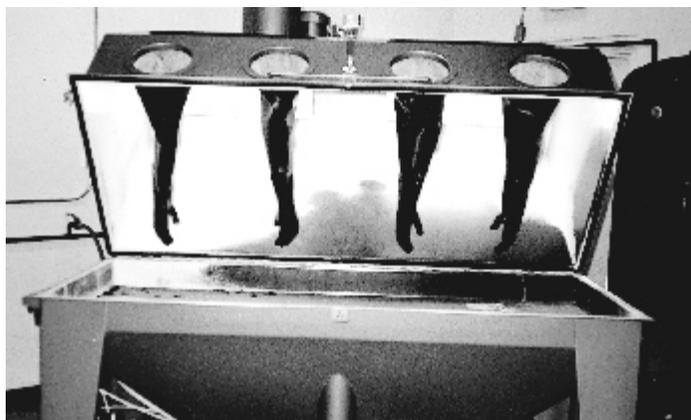


Figure 1: The parts cleaner features convenient access through four glove ports on the front cabinet

"Reducing operator exposure to harsh chemicals was a primary concern" states Figuera. "Eliminating the risk of exposure or injury was a major motivation to move toward the blast technology"

The plastic blast media will remove dried-on ink, without risk of damage to the part's surface. The 72"x36" unit is totally enclosed, with four rubber gloves providing access through the cabinet front. The blast stream is initiated with a foot pedal, and a hand-held nozzle then focuses the blast on the parts requiring cleaning. The plastic media used in this system is similar to the plastic media used in anilox cleaning systems, but is somewhat larger in particle size and more effective.

Once the blast has occurred, the plastic is returned to a reclaim unit. The returned media is sent through an elaborate air wash system, removing fine dust particles from the dried-on ink. The good media returns to the blast unit again.

Over an extended period of time, (100-200 uses), the plastic media shown in Figure 2 begins to break down and becomes too fine for cleaning. This spent media, along with the fine dust from the ink, is captured in collection bags and deposited in a tray for disposal as a non-hazardous waste (as long as the material removed from the parts is non-hazardous).

At Alliance Packaging, the reduction of 150 to 175 gallons of chemical cleaning waste per week has significantly reduced disposal costs. A filtration system reduces six or seven barrels of liquid waste to one 55-gallon drum of solid waste, but the cost for disposal of the solid is still \$150 to \$200 per barrel. Those with different filtration systems may experience greater savings.

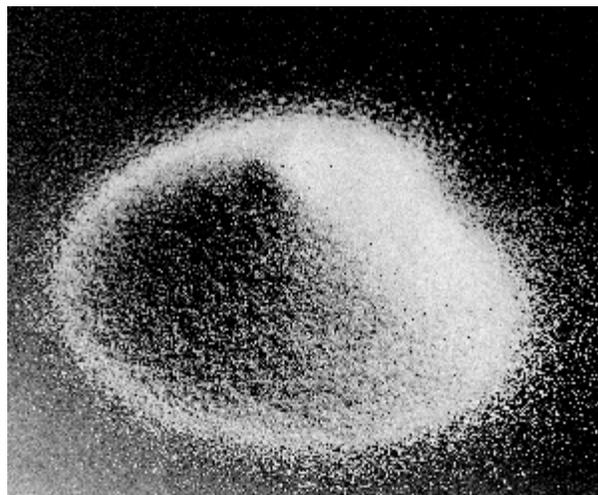


Figure 2: A close-up of the plastic media used by the parts cleaner

Cost-efficiency is only one benefit of this system. "Cleaned parts are now available for use in less than an hour, where previously they required an overnight soak, then lots of 'elbow grease' to clean" concludes Figuera. This provides a quicker cleaning process, one that reduces press downtime and contributes to greater operating efficiency for the entire company.

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PNEAC Editor's Notes:

Mention of trade names of commercial products does not constitute endorsement or recommendation for use by PNEAC or USEPA.

The described process removes solvent-based inks best. It works well on both water-based and UV-cured inks. No cleaning solvent is introduced into this process. Printers using water-based or UV inks can see larger solvent emission reductions than those who clean with solvent reclaimed from solvent-based inks. Dry and brittle residue is removed better than wet or rubbery material.

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