

Is Blanket Washing Taking You to the Cleaners?

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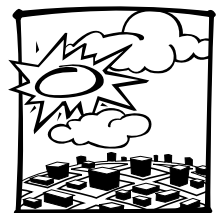
The most problematic wastes for lithographic printers are typically the solvents and rags used for press washing. Typical solvents have low flash points and evaporate very quickly from the rollers and blankets. Some of the solvents used are: methyl ethyl ketone (MEK), acetone, butyl solusol, cyclohexane, toluene, and methyl isobutyl ketone (MIK) and low flash mineral spirits. All of these substances are significant sources of volatile organic compounds (VOC), and many of them are also classed as hazardous air pollutants (HAPs) which are regulated more stringently than VOCs under the Clean Air Act Amendments of 1990.

Wipes used with the above solvents will become a hazardous waste, if they are not commercially laundered; however printers must keep in mind that laundering facilities may face stricter discharge regulations for their wash waters in the near future. The best management practice is to reduce the toxicity of the solvent used on the rags, the amount of solvent on the rags, and the number of rags generated.

P2 for Blanket Washing

Does your company buy large quantities of blanket wash but dispose of none of it? If you answer yes to this question, where is the bulk of this material going? Going out with the used wipes? Evaporating into the shop atmosphere? Are you getting the most cleaning use from it before its gone? The following P2 suggestions are tried and true methods used by printers to reduce the solvent used and the amount of wastes from your press cleaning operations.

- Explore alternative cleaners for press cleaning. Establish a team of operators to find a blanket wash alternative with a lower vapor pressure. This characteristic will lower evaporation rate and improve indoor air quality. This sort of change usually will involve a directive from top management but everyone must understand the change is a requirement so they will “buy” into and accept the idea.
- Consider an automatic blanket cleaner retrofit for presses to reduce solvent use. Automatic blanket washers are most useful for presses with long press runs and few color changes, which allow the presses to be cleaned without having to shut them down—which also results in fewer lost impressions. These washers decrease labor and raw material use, are safer to use, and have increased press efficiency in many cases. Although manual cleaning is greatly reduced, it is not eliminated by automatic blanket washing systems.
- Establish an inventory control system to track solvent use for each press and job. If employees are held accountable for the amount of solvent they use, or if they are issued a limited amount, usage generally decreases significantly.
- Use and maintain roller wash-up blades and ink blades to remove residual ink from rollers. Segregate the waste ink/solvent mixtures that come from the rollers during cleaning; allow solids to settle and decant the solvent from the top of the drum to reuse as same-color roller cleaning, or use to thin same color ink.



- Improve operating practices for efficient press cleaning. Operating procedures often offer the best opportunities for waste reduction in press cleaning. Management should support the following techniques as standard operating practices to reduce press cleaning wastes:
 - Use plunger-can solvent dispensers to control amount of solvent on cleaning wipes. Eliminate open buckets of cleaning solvent at presses.
 - Use a combination of solvents: Some shops have retained a low-flash solvent for periodic cleaning of metering rollers and other harder to clean press components where there is dried ink, varnish, and other debris and then use a higher flashpoint, lower vapor pressure blanket wash for daily cleaning. The low vapor pressure makes it possible to recover 50–60% of the waste solvent from the soiled shop towels.
 - Use solvent for the first pass to remove ink, then use water for the second pass. On the first turn of the cylinder, use press wash to remove most of the ink onto a double-padded shop towel. On the second turn of the cylinder, use a separate double-padded shop towel dipped in water and wrung out to remove the remaining ink (very little) and the paper clays and dust stuck to the cylinder. The water is more efficient at removing the paper contaminants on the roller. Rotate wiper use. Use the second “water wipe” for the first ink wipe on the next roller and a clean wipe for the second water pass ; this will conserve wipe use. (There may be a small amount of moisture left on the roller but it is pulled off on the first few rotation through the press on startup, however additional care is needed to be certain the solvent doesn’t accumulate in the blanket gap, where upon startup, centrifugal force would lead to “speckle-tone” as the roller nears press operating speeds).
 - Clean presses only when needed, not according to a preset schedule.
- Use false-bottom wiper collection cans. Keep all used rags in a sealed fireproof container with a false bottom to catch excess solvent; reuse for cleaning as is or recycle solvent on site for reuse. Leaving rags out to dry or storing them in an open container is considered “illegal treatment” of a hazardous waste if the solvent on them is hazardous.
- Centrifuge rags to recapture solvent for reuse or recycle.
- Be wary of accepting free samples of solvents. If they turn out not to meet your needs, you will be left with the problem of disposing of them. Don’t accept free samples unless the vendor agrees to take back any unused portion.

Case Study

John Roberts Company, a lithographic sheet-fed printer thoroughly investigated alternative solvents and examined their press cleaning procedures for ways to reduce the solvent going to their commercial laundry on their waste wipes. The company established a general awareness campaign, changed to a low vapor pressure solvent, and changed their press cleaning operations to reduce solvent use and waste. The project resulted in a decrease in solvent use of 6270 gallons of blanket wash for a savings of \$18,000. An additional P2 effort involved adding a centrifuge to remove solvent from the wipes prior to sending them to their laundry which resulted in an additional \$34,000 in savings.

Resources

<http://www.state.ga.us/dnr/p2ad/pblcations/printsec.htm#wash> (general and specific P2 for printers—click on subject heading on first page for specific links)

<http://www.pneac.org/sheets/litho/litho.html> (specific blanket wash fact sheets)



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