

Checklist for Print Shops

Use of this Checklist

The purpose of this checklist is to provide a general overview of pollution prevention and safety techniques that can be applied to printing operations. State and Federal Rules and Regulations take precedence over this checklist.

What is Pollution Prevention?

Pollution Prevention (P2), also known as source reduction, attempts to stop pollution before it starts. P2 encourages industries to realize the potential economic benefits of reducing the use and generation of hazardous substances. Implementing P2 can reduce or eliminate the amount of generated hazardous substances and other environmentally harmful substances that must be disposed of, discharged, or released to the environment.

While every print shop differs, every print shop creates waste. To some degree there are common elements applicable to all print shops that are a cost of doing business, which can be reduced with proper planning. One can prevent pollution through examining the techniques that are applicable to print shop operations such as the prepress, press and postpress steps.

Who Should Implement Pollution Prevention?

- Any business that uses hazardous substances and wants to improve their environmental performance, reduce their environmental obligations and liability:
- Any business that generates Nonproduct Output¹(NPO) and wants to keep one step ahead of the competition by increasing efficiency and reducing operating costs:
- Any business as defined in FL Pollution Prevention Rules that meets or exceeds the applicable threshold must develop a P2 Plan and submit a P2 Plan Summary and Annual Progress Report.

A business can save money through various P2 methods such as material substitution, in-process recycling, product reformulation, and efficiency improvement. Implementing a P2 program will also help make the work environment safer for all employees, promote better community relations, and protect the environment.

Pollution Prevention Practices in Print Shops

Pressure from the government and the public to reduce hazardous waste disposal, discharge and releases of pollutants is leading the way companies are doing business. These changes are becoming increasingly focused on pollution prevention. Wastes will vary from each print shop, but the overall source reduction of these wastes will benefit the printers by reducing raw material needs, lowering disposal and treatment costs, and by decreasing the long term liabilities associated with waste disposal.

To reduce cost and liability, the print industry should examine three major types of waste generation.

1. Solid Waste – Printing waste generally consists of waste inks, spent cleaning solutions, empty containers, used film packages, outdated materials, damaged plates, developing film, and test products (some of the wastes mentioned may be considered hazardous).
2. Wastewater – Printing wastewater generally consists of water that comes in contact with oils, inks, cleanup solvents, photographic chemicals, acids, alkalis, plate coating, and metals such as silver, copper and iron.
3. Air Emmissions – Air contaminants from printing operations, such as Volatile Organic Compounds (VOC), Hazardous Air Pollutants (HAPs), and particulates produced from the use of cleaning solvents, inks, alcohol, and other agents.

¹ Nonproduct Output means all emissions, discharges, and hazardous wastes that are generated and that are not intended for use as a product.

Printer Contact List

Florida Department of Environmental Protection (FDEP)
Pollution Prevention & Permit Coordination
SBEAP – Small Business Environmental Assistance Program
1(800) 722-7457
www.myflorida.com/environment

Air Permits

FDEP-Air Resources Management (850) 488-0114
Southeast District Main Office (561) 681-6600

Hazardous Waste

FDEP - Bureau of Solid & Hazardous Waste
(850) 245-8707 MS #4550

Underground Storage Tanks

FDEP-Bureau of Petroleum Storage Systems
(850) 245-8839 MS#4575

Wastewater

FDEP –Water Resource Management
(850) 245-8336

DERM - Local Government Environmental Oversight

Department of Environmental Resources Management
(305) 372-6789
(305) 372-6955 24 hours hotline
www.miamidade.gov

OTHER SOURCES OF HELP

US Environmental Protection Agency (USEPA)
1(800) 368-5888

City of Miami falls under Region 4
Region 4 General Information 1(800) 241-1754
N (or) 404-562-9900

<http://www.epa.gov/region4>

Region 4 Small Business Liaison (404) 562-8287

Region 4 P2 TAP (404) 562-9028

Region 3 and 4 P2 RX 1(800) 476-8686

N (or) (919) 715-6534

<http://wrrc.p2pays.org>

Small Business Ombudsman – FSBEAP 1(800) 722-7457
Stephen McKeough (850) 488-0114, Florida's Small Business Ombudsman
www.epa.gov/sbo/

EPA National Compliance Assistance Center
Printers' National Environmental Assistance Center (PNEAC)
1 (888) USPNEAC (877-6322)
www.pneac.org

Checklist for Print Shops

Alternative Materials:

- To reduce VOC/HAP emissions use vegetable-based, water-based, ultraviolet, or electron beam inks if suitable.
- Use ink that does not contain heavy metals to reduce disposal cost and liability.
- Use waterless offset printing if suitable.
- When cleaning equipment, use non-hazardous, low or no VOC/HAP solutions to reduce waste and to insure employee health and safety.

Inventory:

- Order and manage material to reduce expiring products. Simply put, "Do not order more inventory than you need."
- Use the "first in, first out" inventory procedure to reduce waste. This method will reduce the possibility of expired material by first using the oldest product.
- Material should be inspected when received. If materials are damaged or off-specification, they should be returned immediately.
- Expired material should be inspected and tested before disposal to determine if the expired material can be salvaged.
- Store ink according to manufacturer's instructions to prevent drying and spoilage.
- Use a computerized inventory system to track inventory.

Photo Processing:

- Extend the life of photochemical solutions by installing floating lids, which reduce evaporations, oxidation and contamination.
- Add marbles to the developer to bring the solution up to the brim. This will reduce the amount of oxidation and extend the life of the chemical.
- Use squeegees to wipe off excess liquid from the film to reduce cross contamination.
- Use electronic imaging.
- Install a silver recovery system to reduce waste.
- Use countercurrent rinsing to reduce solution contamination by using dirty solvent for initial cleaning, and clean solvent for the final cleaning.
- Follow the recommended storage instructions to increase the life of the photochemicals. Add replenishers and regenerators to extend the life of the photo and film developing baths.

Platemaking (Prepress):

- Use laser plate-making with an electronic imaging system.
- Reduce drag-in and drag-out contaminants by adding dripboards and extending the drip time.
- Use pre-sensitized plates that are processed with water.
- Use non-hazardous developers and finishers to reduce the generation of hazardous waste.
- Use direct-to-plate technologies to prepare plates from computer images without intermediate steps to save time and money.
- Sell used and damaged plates to an aluminum recycler.

Printing (Press):

- Minimize color changes. Run the lightest batch to the darkest batch to reduce the generation of waste.
- Run similar jobs back to back to reduce waste generation.
- Fill ink fountains only enough for a particular run or shift. Also, install automatic ink levelers to keep the fountain at the optimal level for a quality print.
- Dedicate one press for specific inks (e.g., vegetable ink), if applicable.
- Use web detectors and automatic splicers.
- To reduce waste ink generation, clean ink fountains only when changing colors or if ink dries out.

Printing (Press): [CONTINUATION]

- Use refrigeration cooling to reduce evaporation of fountain solution.
- Use solvent hoods to recapture solvent losses from the presses and recover solvents with on-site distillation equipment.
- Use manual spot application of chemicals rather than cleaning the entire screen while in production, to increase efficiency and reduce waste.
- Install a color computer that can rematch used ink into a new batch.

Finishing (Postpress):

- Use water-based or hot glue adhesives, rather than solvent-based adhesives.
- Reduce coating materials and adhesives when possible.
- Use mechanical binding methods instead of glue.
- Reduce paper use by selecting properly sized paper.

Cleanup:

- Use dry and non-solvent cleaning procedures when applicable to reduce waste.
- Train employees to use the least amount of cleaner possible. For example, clean equipment by using a squeegee to collect the ink. Then recycle the used ink and solutions used in production.
- Segregate spent solvent and ink solutions. Then the recovered ink and the recovered solvent can be used for future batches and cleaning.
- Use high-pressure washing equipment to reduce the amount of wastewater generated. (Note: this method is typically used in screen-printing).
- Squeeze, wring or centrifuge rags to recover solvent before laundering and reuse the solvent in parts washers or for additional press cleaning.
- Do not soak rags in the solvent. Put the solvent on the rag with a spray bottle.
- Use an automatic blanket cleaner.
- Clean with reusable towels, instead of disposable towels.
- Use a cleaning solution with a low VOC/HAP content and a low vapor pressure.
- Save old inks and use them as house colors.

Good Housekeeping:

- Use spous, gloves and safety glasses at all times to prevent accidents and injuries.
- Do regular maintenance on equipment to ensure that all machinery and processes are working efficiently. Check for leaks and spills, and perform repairs immediately (e.g. combustion sources such as heaters or boilers).
- Maintain spill-kits and instruct all employees in the proper use and location of the spill-kits.
- Prohibit the mixing of hazardous waste and non-hazardous waste. By keeping them separate you can readily recycle non-hazardous waste. When you mix hazardous with non-hazardous waste, all the waste becomes hazardous.
- To reduce spills use spigots, pumps, and funnels when dispensing or transferring liquids to and from storage containers.
- Keep chemicals in safety cans or covered containers between uses to reduce evaporation, spills and contamination.

Waste Accounting:

- Collect accurate data on the generation of waste from each source, such as spent inks, spent cleaning solutions, and rags.
- Establish a tracking system for waste generation and encourage waste reduction.
- Provide feedback to your employees on waste reduction, informing them of their progress.
- Consider installing a distillation unit at your facility to recycle solvents.
- Consider recycling solvents off-site to be returned and reused. Remember it is better not to generate the waste in the first place.