

Number 111
January 2007

Painting and Coatings Pollution Prevention

What is Painting and Coatings Pollution Prevention (P2)?

Most products require some type of coating such as paint, stain or sealer. Because coatings are widely used, there is potential for environmental benefit and cost savings through P2. Source reduction and recycling techniques can reduce hazardous and solid waste, air emissions, raw material and water use. P2 strategies involve surface preparation, coating application and equipment cleaning.

Surface Preparation

Most items require a preparation or cleaning step prior to painting. This step is commonly called pretreatment for new products and paint stripping for products that need to be reworked. You can reduce the need to oil parts in storage prior to surface prep by having "just-in-time" ordering practices. This means that only the amount needed is on hand at any given time.

Reduce solvent evaporation by installing sink lids, increasing freeboard space and installing freeboard chillers

in solvent vapor degreasing units. Aqueous solutions, mechanical methods, countercurrent washes and non-caustic paint removers can reduce the amount of waste generated. Alternative solvents are another P2 opportunity, such as citric acid or microbial-based cleaners.

Coating Application

Once parts are ready to be painted, the type of coating material and application method can impact transfer efficiency. Transfer efficiency is the amount of paint solids that adhere to the object being painted, divided by the amount of paint applied or used. High transfer rates save money by reducing the amount of paint wasted, overspray and air emissions. Replace solvent based paint with water based, powder, or high-solids paint. Use paints that have less toxic pigments (some contain metals).

Modify equipment to use High Volume Low Pressure (HVLP) or electrostatic spray technology. Flow coating, roller coating, or dip type coating processes can reduce the amount of waste coatings. A dedicated delivery system can reduce waste created from clean-

ing. Train paint operators to minimize paint waste/overspray. Avoid overspray by holding the gun level, setting controls appropriately, and maintaining proper gun distance and speed. Use smaller than standard (one quart) size paint cup on spray guns for small touch up jobs. Schedule light colors first then dark when different colors will be applied the same day to reduce cleaning waste. Use paint heaters instead of solvent thinners to reduce coating viscosity.

Equipment Cleaning

Use distillation/recycling practices so less new solvent is needed. Keep waste streams separate for reuse recycling, or treatment. Use pop-up level indicators on drums and other bulk receptacles to prevent overfilling. Control your inventory to prevent overuse/underuse of materials.

Don't allow raw materials to become old and useless, creating hazardous wastes. Use a first-in, first-out policy.

Keep non-hazardous materials from becoming contaminated. Label all materials and wastes. Use tight-fitting lids on containers except when adding or removing material or waste to prevent spills and leaks.

Use enclosed cleaning devices, like a gunwasher. Mix paint according to need and document its use so you only purchase what you need. Schedule jobs to maximize color runs to save waste from changing colors in paint lines.

Use spray booth coatings that peel off to clean overspray instead of using

What is Pollution Prevention?

Pollution prevention (P2) is the use of source reduction techniques to reduce risk to public health, safety, welfare and the environment and, as a second preference, the use of environmentally sound recycling to achieve these same goals. P2 addresses all types of waste and environmental releases to the air, water and land.



Painting and Coatings Pollution Prevention

solvents. Routinely clean paint hooks to prevent paint build-up. Perform preventative maintenance. Keep a spill kit onsite and train employees yearly in spill prevention and response. Use dry cleanup methods such as “scrape and scoop” instead of washing the area down.

P2 Benefits

Implementing some of the P2 strategies in this fact sheet may reduce some of the compliance requirements and the costs of complying with environmental rules and regulations. Environmental benefits include reducing VOC emissions and hazardous waste.

P2 Success Stories

General Extrusions, Inc., (GEI), Youngstown, OH, is an aluminum extruding facility with 300+ employees. GEI extrudes, fabricates and finishes parts for communications equipment, office furniture, heavy duty equipment, computers, appliances and medical equipment. GEI installed a small paint booth for powder coating to eliminate solvents and paints that became hazardous waste when disposed.

Total Image Specialists, in Columbus, OH, with 85 employees, manufactures indoor and outdoor signs for businesses including banking, retail establishments and restaurants. They reduced their hazardous waste by installing two spray gun washers with built-in distillation units. Productivity increased by 30 percent. Hazardous waste management costs were reduced by 50 percent. They previously disposed of four to five 55-gallon drums of liquid hazardous waste every month. They now dispose of only one 30-gallon drum of solid hazardous waste per month. Their hazardous waste generator status changed from Small Quantity

Generator (SQG) to a Conditionally Exempt Small Quantity Generator (CESQG), making compliance with environmental regulations easier and less costly.

Attached List of P2 Suggestions

The attached list of P2 suggestions can help you reduce the amount of hazardous waste you generate. Contact your inspector at the appropriate District Office or Ohio EPA's Office of Compliance Assistance and Pollution Prevention (OCAPP) at 800-329-7518 for more information.

Resources

OCAPP P2 on-line training on painting and coating at: www.epa.state.oh.us/ocapp/p2/onlinep2training/onlinep2training.html

Ohio EPA, OCAPP Web Site, www.epa.state.oh.us/ocapp/ocapp.html

Painting and Coatings Industry P2 Checklist, Pollution Prevention Institute, Kansas State University, June, 2001, www.sbeap.org/ppi/publications/paintings_and_coating_industry_p2_checklist.PDF.

Pollution Prevention in Painting and Coating Operations, Office of Compliance Assistance and Pollution Prevention, Ohio EPA, Number 23, December, 2004, www.epa.state.oh.us/opp/fact23.pdf.

Total Image Specialists, Case Study, DHWM Summer 2006 newsletter *Notifier*. www.epa.state.oh.us/dhwm/pdf/Summer2006Notifier.pdf