

Pollution Prevention Opportunities Checklist for Business

Information for the following checklist was compiled from the following sources:

"Pollution Prevention Checklist for Your Business"

Maryland Department of the Environment's Pollution Prevention Program

Phone: 410-631-4119.

<http://www.mde.state.md.us/permit/checklist.htm>

"Checklist for All Industries"

Ohio Environmental Protection Agency

Division of Hazardous Waste Management

122 South Front Street, P.O. Box 1049, Columbus, Ohio 43216-1049

614-644-2917 Phone 614-728-1245 Fax

<http://www.epa.state.oh.us/dhwm/chkall.htm>

Checklists specific to your type of industry may also be available by calling Pinellas County's Pollution Prevention and Resource Recovery (P2R2) Program at 464-4761.

MATERIAL RECEIVING

Waste Origin/Type

Material Receiving/Packaging materials, off-spec materials, damaged container, inadvertent spills, transfer hose emptying

Pollution Prevention & Recycling Methods

- Establish a centralized purchasing program.
- Use a "Just-in-Time" ordering system to prevent overstocking of raw materials and hazardous materials, which may become obsolete or outdated.
- Initiate a first in-first out (FIFO) use policy for all materials purchased.
- Establish an inventory control program to trace chemicals from cradle to grave.
- Inspect material before accepting a shipment to ensure material is to specifications and that containers are in good condition.
- Date materials containers as received.
- Rotate chemical stock.
- Develop a running inventory of unused chemicals for other departments' use or advertise with a waste exchange.
- Select quantity and package type to minimize packing waste. Use rinseable/recyclable or reusable containers.
- Switch to a less hazardous raw material.

RAW MATERIAL AND PRODUCT STORAGE

Waste Origin/Type

Raw material and product storage/tank bottoms; off-spec and excess materials/chemicals; laboratories/reagents; samples; spill residues; leaking pumps, valves, tanks, and pipes; damaged containers; empty sample and chemical containers

Pollution Prevention & Recycling Methods

- Establish spill prevention, control and countermeasures (SPCC) plans.
- Use properly designed tanks and vessels only for their intended purposes.
- Install overflow alarms for all tanks and vessels
- Maintain physical integrity of all tanks and vessels
- Set up written procedures for all loading/unloading and transfer operations
- Install secondary containment areas
- Instruct operators to not bypass interlocks, alarms, or significantly alter setpoints without authorization
- Isolate equipment or process lines that leak or are not in service
- Use sealless pumps.
- Use bellows-seal valves.
- Document all spillage
- Perform overall materials balances and estimate the quantity and dollar value of all losses.
- Use floating-roof tanks for VOC control.
- Use conservation vents on fixed roof tanks.
- Use vapor recovery systems.
- Store containers in such a way as to allow for visual inspection for corrosion and leaks.
- Stack containers in a way to minimize the chance of tipping, puncturing, or breaking
- Prevent concrete "sweating" by raising the drum off storage pads.
- Maintain MSDSs to ensure correct handling of spills.
- Provide adequate lighting in the storage area.
- Maintain a clean, even surface in transportation areas.
- Keep aisles clear of obstruction.
- Maintain distance between incompatible chemicals.
- Maintain distance between different types of chemicals to prevent cross-contamination.
- Avoid staking containers against process equipment.
- Follow manufacturer's suggestions on the storage and handling of all raw materials.
- Use proper insulation of electric circuitry and inspect regularly for corrosion and potential sparking.
- Use large containers for bulk storage whenever possible.
- Use containers with height-to-diameter ratio equal to one to minimize wetted area.
- Empty drums and containers thoroughly before cleaning or disposal.
- Reuse scrap paper for note pads; recycle paper.
- Use micro or semi-micro analytical techniques.
- Increase use of instrumentation.
- Reduce or eliminate the use of highly toxic chemicals in laboratory experiments.
- Reuse/recycle spent solvents.
- Recover metal from catalyst.
- Treat or destroy hazardous waste products as the last step in experiments.
- Keep individual hazardous waste streams segregated.
- Segregate hazardous waste from nonhazardous wastes.
- Segregate recyclable waste from nonrecyclable wastes.
- Assure that the identity of all chemicals and wastes is clearly marked on all containers.
- Investigate mercury recovery and recycling.

OPERATION AND PROCESS CHANGES

Waste Origin/Type

Operation and Process Changes, Solvents, Cleaning Agents, Degreasing Sludges, Sandblasting Waste, Caustic, Scrap Metal, Oils, Greases from Equipment Cleaning, Sludges and spent acid from heat exchanger cleaning

Pollution Prevention & Recycling Methods

- Perform overall material balances and estimate the quantity and dollar value of all losses.
- Inspect equipment, pumps, valves and pipes for leaks.
- In products and plant maintenance, consider using low VOC paints and coatings, and improve paint spray equipment and technique to minimize waste.
- Maximize dedication of process equipment to reduce cleaning frequency.
- Plan production schedule to reduce the generation of hazardous waste and to allow lower cleaning frequency. For example, schedule tint mixing from light to dark to avoid excessive cleaning.
- Use squeegees and wipers to recover residual materials prior to rinsing.
- Use centrifuge or other methods to remove excess solvent in cleanup rags before laundering.
- Clean equipment immediately after use to minimize the amount of solvent needed.
- Use cleaning systems that avoid or minimize solvents and clean only when needed.
- Standardize solvent usage within the facility and reclaim solvent by distillation.
- Consider substituting aqueous cleaners for petroleum-based or chlorinated solvents.
- Consider biodegradable and less toxic cleaners.
- Segregate waste streams to improve opportunities for recycling.
- Look for another company to accept your waste by-product and explore waste exchanges.
- Use bypass control or pumped recycle to maintain turbulence during turndown.
- Use smooth heat exchange surfaces.
- Use on-steam cleaning techniques.
- Use high pressure water cleaning to replace chemical cleaning where possible.
- Use lower pressure steam.

WATER CONSERVATION

Pollution Prevention & Recycling Methods

- Identify water inflow and outflow from each unit and consider opportunities for in-process recycling.
- Use high pressure, low volume water nozzles.
- Maximize dry cleanup -- attempt to cleanup as much as possible before hosing down surfaces.
- Reduce use of constant running sinks.

ENERGY EFFICIENCY

Pollution Prevention & Recycling Methods

- Conduct an energy audit that addresses heating/cooling, lighting, steam losses, and motors.
- Eliminate waste heat by insulating piping and heat generating equipment.
- Consider cogeneration and renewable energy.
- Consider switching to fluorescent lights with electronic ballasts, low mercury vapor lamps, compact fluorescents, low- energy "Exit" signs, solar-powered exterior lighting, timed switches and motion sensors.
- Reduce vehicle fleet and employee trips.
- Purchase energy efficient office equipment that offers a low-power "sleep" mode when not in use.
- When building or renovating, increase daylight in workspaces, and use energy efficient building materials.

Pollution Prevention & Recycling Methods

- Emphasize the importance of pollution prevention to staff by explaining the economic and environmental ramifications of hazardous waste general and disposal, raw materials usage, and worker safety.
- Establish facility-wide pollution prevention goals.
- Perform facility-wide pollution prevention opportunity assessments.
- Provide training for proper handling of materials and operation of equipment to minimize material waste and energy and water use.
- Consider closer supervision to improve production efficiency and reduce inadvertent waste generation.
- Create forums for employees and supervisors to identify ways to reduce waste.
- Solicit and reward employee suggestions for waste reduction ideas.
- Allocate waste treatment and disposal costs to the operations that generate the waste.
- Allocate utility costs to specific processes or products.
- When planning any future plant modernization, consider more efficient equipment, which can reduce waste volumes while meeting or exceeding current production rates.
- Consider modifying the specifications, design or composition of your product to reduce life-cycle costs. Look for ways to reduce the waste generated and raw materials and energy consumed after your product leaves your facility. For example, reduce packaging, increase the energy efficiency and durability of your product, make replacement parts available, lower its toxic content, and use recyclable/reusable/returnable components.

Contact Pinellas County's Pollution Prevention and Resource Recovery (P2R2) Program at 464-4761 for Waste Reduction Assistance