

## Pollution Prevention: Getting Started

*Whether your company formally launches its program with a slogan and logo, mugs and specially made recycling bins, or informally launches it through a simple memo or announcement, the true level of commitment will soon become evident to employees.*

### Establish Top Management Support

Begin by conveying upper management's commitment to employees through a formal policy statement or management directive. A policy statement needs to address why a pollution prevention program is being established, what is to be accomplished in qualitative terms, and who will do it. Employees will be certain to evaluate how meaningful management's commitment is.

### Get Employees Involved

Studies show that companies with employee involvement have more successful pollution prevention (P2) activities than those without. Organize a cross-functional team and empower them with the responsibility for P2 activities. Consider naming a P2 coordinator to head-up the team. Get all employees involved through training and education efforts and incentive programs

Quality circles, task forces or other green teams help link the company's environmental goals with the rest of the organization. They should consist of representatives from a variety of levels of the company, and should be small enough (less than 12 people, if possible) for all members to participate.

Employees will acquire a sense of ownership of P2 activities when they are encouraged to: help define company goals and objectives; review processes and operations to determine where and how wastes are generated; recommend ways to eliminate or reduce waste production at the source; design or modify forms and records to monitor materials used and wastes; find ways to involve suppliers and customers; and think of ways to acknowledge and reward employee contributions to the pollution prevention effort.

Suggestion programs may be more effective for your company or more fitting for your company culture. Be sure to establish and publish criteria for the suggestion program in advance. Consider publishing all suggestions, since this may encourage new ideas.

### Understand Your Corporate and Plant Cultures

Understand your corporate and plant cultures and design your P2 program to work within those cultures. Is your company quality-driven, management-driven, or champion-driven? Are grass-roots type efforts effective? Are slogans and logos seen as gimmicky, or do they motivate employees? Employees may have grown accustomed to monetary rewards for extra effort, or to profit sharing. If employees are in a union, union representatives should be involved in the earliest stages of planning possible.

Management's commitment to and attitude toward P2 may be agreeable to employees, but more is needed before employees can translate that commitment into their own jobs.



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## Educate Employees

Educate employees about their P2 responsibilities. Provide the necessary training so that employees can fulfill these responsibilities. This is important both for new and veteran employees.

Educate employees about the goals of the P2 program, and the benefits to the company, the employees, the environment and the community. Re-education can help maintain the momentum and visibility of the program.

Employees may need training or education before they can participate in teams. They may need instruction on how to use various total quality management tools such as brainstorming, fish-bone diagrams and pareto charts.

Finally, employees must receive the necessary training to implement P2 projects. For example, if it is decided that painting operators should use improved spray technique to reduce paint waste, those operators must be taught the proper spray techniques. They also should be educated about the advantages of the new way of doing things.

## Components of Involvement

How can your company help ensure that employees participate in the P2 program in a manner that benefits both themselves and the company? There are four key ingredients to beneficial involvement: knowledge; information; power; and rewards. Each is critical.

- Rewards without power, knowledge and information lead to frustration and lack of motivation because people cannot influence their rewards.
- Information, knowledge and power without rewards are dangerous because nothing will ensure that people will exercise their power in ways that will contribute to organizational effectiveness.
- Power without knowledge, information and rewards is likely to lead to poor decisions.
- Information and knowledge without power lead to frustration because people cannot use their expertise.

## Track Waste Costs

Identify all sources of waste from your operations and calculate their full cost. Include purchase (raw material), treatment, disposal, compliance and other related costs. Allocate these costs to specific processes, operations or departments; not overhead. Communicate these waste costs to staff. Focus P2 efforts on wastes that are most costly and difficult to manage.

## Conduct Periodic P2 Assessments

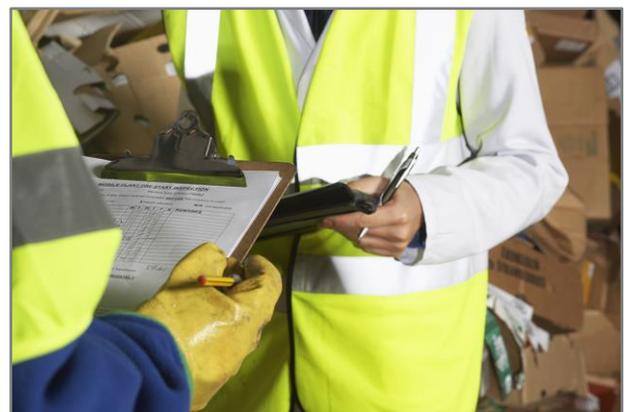
Use a team approach and conduct a P2 assessment of facility operations and processes that generate waste. The P2 assessment will help identify specific source reduction and recycling ideas. Consider using problem-solving tools like process mapping, materials accounting, cause-effect analysis, and brainstorming. Implement those P2 ideas that are economically and technically feasible. Consider using an outside resource like OCAPP (Office of Compliance Assistance and Pollution Prevention) to help conduct the P2 assessment.

## Measure Results and Continuously Improve

Measure the results of your P2 activities through money saved and pounds of pollution prevented. Document and publicize these successes to your employees, customers, vendors (suppliers), community and regulatory officials. Evaluate your P2 activities and implement changes to policies, goals and program activities to ensure continuous improvement.

## Tips for Small Businesses

- Target one material for reduction when getting started.
- Initially focus on P2 ideas that require minimal capital investment.
- Involve all employees in planning and implementation.
- Contact the Office of Compliance Assistance and Pollution Prevention or other technical assistance providers for help in getting a P2 program started.



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## Ohio Success Stories

### Crown Equipment Corporation, New Knoxville

Crown employees are encouraged to participate in cross functional teams and through its environmental sustainability team (with participation of top management through line staff) to identify practices that can improve the occupational and environmental safety of the facility. A *SafeSteps* program has also been established to encourage employees to consider environmental and safety opportunities on a daily basis. Employees also have provided many recommendations to help the facility pursue its zero landfill status.

### Kent Elastomer Products, Winesburg

To complete and sustain improvements, Kent Elastomer uses tools such as Kaizens, 6S, process mapping, value stream analysis, line balancing, kan ban, poka yoke, visual work place, one-piece flow and spaghetti charts. “Lean” provides a systematic approach to incremental improvements. Recently Six Sigma tools were added to the toolbox when three employees became Six Sigma Black Belts. Recognizing the importance of employee involvement, it has been a company-wide goal that every employee participates in at least one Kaizen event.

The facility uses a tool called “Stand-in-a-Circle” in which an employee stands on a wild-colored circular rug for 30 minutes and jots down 30 observations for improvement. The observations from a Stand-in-a-Circle can include suggestions for environmental, safety, efficiency and housekeeping. The point is the process has turned the workforce into constant observers/auditors. It has trained everyone to notice and think about surroundings, processes and improvements. In addition to this invaluable training, numerous improvements came from these.

Furthermore, the facility has another observation method called “20/20” – title chosen for the obvious reference to perfect vision – but also for the goal of 20 tickets per employee per month (about one a day) to be eligible for Employee of the Month.

## Pollution Prevention Planning Checklist

As you begin to develop P2 activities for your facility, review the following checklist. It is detailed enough to make sure your main bases are covered; however, you’ll want to add some of your own specific ideas.

### Program Development

- Develop a written pollution prevention policy supported by top management.
- Establish ambitious and measurable P2 goals.
- Periodically evaluate P2 program activities and promote continuous improvement.
- Designate a P2 coordinator and team.
- Plan to involve employees early on when making decisions on P2 projects and activities.
- Create an incentive program to get all employees involved with P2.
- Conduct periodic P2 assessments of processes and operations.
- Use problem solving tools like process mapping, materials accounting, cause-effect analysis, and brainstorming for P2 assessment activities.
- Evaluate P2 ideas considering cost, ease of implementation, payback and environment benefit.
- Establish and maintain a waste tracking system.
- Determine full cost of wastes from operations and processes.
- Develop an implementation schedule for P2 activities.
- Measure and communicate the results and benefits of P2 activities.
- Identify resources for technical assistance, including the local Chamber of Commerce, trade associations, state and local agencies, equipment vendors, consultants and other businesses.

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### Examples of P2 Activities

- Establish improved quality assurance/quality control procedures to reduce the generation of rejected products.
- Identify potential production changes that would improve efficiency including process, equipment, piping and layout changes.
- Consider procedural measures, loss prevention, material handling improvements and production scheduling to reduce wastes.
- Investigate “non-toxic” or “non-hazardous” alternatives for material substitutions.
- Segregate all waste streams to reduce contamination of recoverable materials.
- Investigate waste exchange programs for both solid and hazardous waste.
- Replace disposable materials with reusable and recyclable materials.
- Investigate the use of returnable and/or recyclable containers and pallets.
- Identify specific waste materials that could be recycled either on-site or off-site.
- Explore the use of recovery equipment for reducing hazardous, solid and liquid wastes in the form of sludges, solvents, acids, degreasers and other wastes.
- Purchase materials in bulk or larger containers, but purchase only what you need to avoid spoilage or obsolescence.
- Control inventory to reduce waste; rotate stock, using oldest purchases first.
- Invest in products and equipment that are durable, easily repaired, and/or recyclable.
- Ask vendors to minimize unnecessary packaging, use recycled materials, or use returnable packaging.
- Determine if outdated stock can be returned to suppliers for reuse or reformulation.
- Don't accept product samples from sales people if there is a chance the samples will become a waste.
- Look for opportunities to reduce energy and water use.

### **Where to Get More Help**

Ohio EPA's Office of Compliance Assistance and Pollution Prevention (OCAPP) can help you. OCAPP also offers free on-site P2 assessments, and has extensive resources available with technical information to help you identify ways to reduce waste and save money. For more information, visit [epa.ohio.gov/defa/](http://epa.ohio.gov/defa/) or contact us at (800) 329-7518.