

Purchasing Environmentally Preferable Janitorial Products

Making the change to less toxic cleaning products

Thomas Barron, Debbie Raphael, and Lara Sutherland

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Recently, a great deal of interest has been generated in finding substitutes for hazardous janitorial products. In a previous issue of this journal, we discussed the occupational health consequences of using hazardous cleaners, and presented several P2 ideas for janitorial products. See Barron & Sutherland, "Environmentally Preferable Janitorial Products: Issues and Opportunities," *P2: Pollution Prevention Review*, Volume 29, Number 4 (Autumn 1999).

Here we describe environmentally preferable purchasing efforts being undertaken in state and local government agencies, and summarize the major lessons learned.

EP Purchasing

Consumers, private organizations, and government agencies are all starting to look for environmental friendliness in the janitorial cleaning products they buy. But the experience of the public sector is particularly illuminating because it generally involves a very transparent process. Governments must solicit bids for these types of purchases, a procedure that requires a formal evaluation of product attributes that impact human health and the environment. This process can, of course, be adapted for private organizations or other purchasing entities.

Purchasing of environmentally preferable (EP) products inevitably involves behavior change. End users such as mechanics, custodians, and office staff have been using traditional products for many years, and are often satisfied with their results. When environmental managers suggest a switch to EP products, they are usually met with resistance simply because any change is difficult, and it is human nature to resist change. Yet behaviors can be changed, and attitudes towards new products and systems improved. Behavior change involves much more than just issuing a carefully worded policy statement or telling janitors to switch product "A" for product "B."

A careful review of EP purchasing efforts across the country reveals four common elements that are present in all successful programs:

**Management Support
Purchasing Agents
Environmental Staff
Training of End Users**

We call this the "Sandwich Approach" to environmental purchasing. All elements must be in place or the program "sandwich" will fall apart.

Management Support

Support from decision-level management is important if an EP purchasing program is to be successful. For small pilot projects, support from the facility manager of a single building may be adequate. For larger programs, support from city administrators or elected officials is required.

Support of this type is imperative if busy managers and staff are to give sufficient time to implement the change.

Training of End Users

No matter how well worded the policy or how effective the product, if the people implementing the change do not believe in the program, all efforts are doomed to fail. Attitudes like “if it doesn’t smell like bleach it won’t clean” or “if it’s got ‘environmental’ on the label it must be weak, and will result in more effort on my part to get the job done” must be addressed head on. These attitudes can also result in overuse of product, a practice which is potentially harmful to both the user and the environment.

End users must be trained by a credible source, not by the environmental staff at their agency, who probably have never cleaned a public restroom. In addition, including these end-users in product selection and testing will turn skeptics into stakeholders. End users often become the best trainers, and should be used as models of success when approaching new departments.

Purchasing Agents

In all large institutions, purchasing is done according to a complex and detailed set of regulations and policies. Bid processes are accountable to public scrutiny, and budgets are carefully guarded by elected officials and civil servants. Purchasing agents are skilled in locating almost any commodity, and are well trained in the evaluation of lowest cost bids.

Purchasing agents are usually not trained to develop environmental criteria or to read a material safety data sheet to evaluate the human health impacts of various product ingredients. However, these agents are critical to the success of any institutional purchasing program. They assure that the bid process goes smoothly, and can help with the enforcement of EP purchasing policies by rejecting requests for products that do not have the required approval of an environmental office.

Environmental Staff

One of the most challenging and time-consuming aspects of EP purchasing is defining just what is meant by the phrase “environmentally preferable.” Unfortunately, no universal definition exists for any product application (e.g., glass cleaner or carpet shampoo), and each locality may find it has a unique set of priorities regarding human health and environmental protection.

The environmental staff must provide the technical expertise and work with end users to determine product specifications. Purchasing agents and end-users do not have the time to develop technical specifications, and such details are rarely spelled out in the policy issued by top management. Therefore, environmental staff must become the accountable member of the team whose job it is to facilitate all elements of the “sandwich.”

The Purchasing Process

Once the “sandwich” is in place, the five-step purchasing process is ready to begin:

- Step 1: Establish Desired Goals
- Step 2: Design an Effective Bid Process
- Step 3: Review and Score Vendor Responses
- Step 4: Test Product Effectiveness
- Step 5: Award Purchase Order(s)

Step 1: Establish Desired Goals

When designing a purchasing program aimed at an entire city or state, there are a variety of decisions that need to be made even before product specifications are determined. For example, a program may “require” participants to use the EP product by offering only that pre-approved product in an institutional warehouse or on a state contract. This approach, used by the City of Santa Monica and the State of Minnesota, ensures maximal compliance with policies and works well when purchasing is very centralized and when all entities are already in full support of the EP policy statement.

An alternative strategy is the phased-introduction approach being used by the Commonwealth of Massachusetts. This approach offers internal agency customers a choice of products. These EP products are on a separate contract, and agencies can choose to either remain with the previously available, non-EP products or switch to the EP contract when they are ready. This arrangement is advantageous in situations where the customers are a diverse or large group, and a massive switchover to EP products might be problematic or undesirable. Education and marketing efforts will expand the initial use of the EP contract, with the possibility of making this an exclusive contract being deferred into the future.

These examples illustrate alternatives for reaching the desired degree of “greenness” that the agency has as its goal. This decisionmaking process can be visualized with the matrix shown in **Exhibit 1**. In deciding where within this matrix to aim their environmentally preferable purchasing efforts, program managers need to consider such factors as the willingness of end users to change, the availability of alternative products, the relative costs of these products, and the resources available to implement the change. There is no right answer to this decision. It may be easier to “sell” potential participants if you approach your goal gradually, one step at a time, rather than attempting a giant leap.

A pilot program may choose to start by using only one or two environmental criteria, and then add criteria as the program grows. A first cut could examine biodegradability, SARA 313 Title III reportable chemicals, or volatile organic compound (VOC) levels. Alternatively, the program could evaluate only a few particularly toxic products, such as metal cleaners and carpet cleaners. After the first contract or purchase has been successful and the purchasing staff has gained expertise, more products or criteria may be added.

**Exhibit 1
 Improving Product Environmental and Health Risks**

		Environmental Risks		
		High	Medium	Low
Health Risks	High	Start		
	Medium			
	Low			Goal

Step 2: Design an Effective Bid Process

The environmental specifications unique to a pollution prevention approach to procurement can be incorporated into the traditional bid process of an institution. Most solicitations include

specifications of some sort, whether they pertain to the potential supplier's years in business or to product performance characteristics.

Certain things should be kept in mind when designing a bid process:

- Most janitorial product vendors are not accustomed to providing detailed safety and environmental data with their bids
- More time will be required for bid preparation
- More time will be required for bid evaluation
- Performance specifications should not be compromised

The bid process involves several steps: preparing technical specifications, soliciting bids and working with vendors on their bid preparation, evaluation of bid responses, and performance testing. Some key points about these steps are discussed below.

Technical Specifications

Many specifications for "less toxic" or "environmentally preferable" janitorial cleaning products are publicly available from a variety of sources. The City of Santa Monica, the states of Massachusetts and Minnesota, and the General Services Administration of the U.S. Government have all developed specifications.¹

Green Seal, Canada's EnviroChoice Program, Germany's Blue Angel program, and other certification services have also developed criteria for janitorial cleaners. These sources can be used to develop original specifications, or can simply be adopted by the soliciting institution.²

Specifications should be tailored for:

- The resources available for bid review;
- Certain environmental issues that may be especially important to the purchasers or in the geographic area where the products will be used; and
- The availability of suppliers to provide such products for the purchasers.

Bid Review

Resources required for bid review should not be underestimated. Over 200 person-hours were required to review the 24 criteria listed in the Massachusetts specifications for the 106 products that bidders submitted.

While the time required for bid evaluation is crucial, expertise is also important. Bid reviewers must be capable of understanding supporting documentation so that an informed decision can be made as to product compliance with the specifications. If adequate resources are not available to review numerous criteria for a large number of products, it is possible to achieve toxicity reduction by focusing on just a few criteria, such as biodegradability; avoidance of Sara 313 Title III chemicals and carcinogens, mutagens, and teratogens; and reduction of VOCs. VOC level and Sara 313 Title III chemical content are routinely available and therefore are easy to evaluate with a minimum of effort.

Each specification should be accompanied by a list of documentation that the purchaser will accept as confirmation of compliance with the specifications. Depending on the situation, such documentation may include official laboratory test results, legally required certification (in the case of VOC limits, for instance), material safety data sheets (MSDSs), or letters of certification from a chemist.

Care should be taken to validate the claims of vendors. Both Massachusetts and Santa Monica experienced vendor claims that could not be backed up with documentation. For example, vendor salespeople may not understand that “biodegradability” is a technical definition, or may incorrectly assume that their products do not contain reportable chemicals.

Meeting environmental specifications is not the only requirement for a successful procurement contract. Vendors must be able to provide the product in suitable quantities within a reasonable period of time to the service area, and may also be required to provide training. Requirements regarding training may need to be incorporated into the original bid specifications; training is essential when switching to less toxic products, primarily because a change in cleaning method or equipment may be necessary for the product to work. If appropriate training is not provided, improperly trained janitors may claim that the new products do not work, and may want to switch back to the original (possibly more toxic) chemicals.

Working with Vendors

Holding a vendor conference prior to the due date for the bid response will assist in evaluating bids because vendors will be more adequately prepared to produce acceptable bid responses. Most cleaning product vendors have never provided toxicity or other chemical information during their sales operations. Salespeople may be unaccustomed to working in cooperation with the supplier’s manufacturing chemist, whose expertise will be needed to accurately and completely prepare the bid. In situations where the vendors are selling a product manufactured elsewhere, communication between the sales force and the formulation chemist may be nonexistent and difficult to establish. These factors should be taken into consideration so that adequate time is allowed for the vendors to prepare their bids.

At the vendor conference, the purchasing agent should emphasize the technical nature of the bid responses and the need for collaboration between each vendor’s internal departments. For example, although Massachusetts required a chemist to sign a statement that he or she had reviewed the entire bid for accuracy and truthfulness, it became obvious during the evaluation process that many vendors had not reviewed all the chemical lists in comparison to the ingredients. In some cases, the chemist was hardly involved in bid preparation at all.

Step 3: Review and Score Vendor Responses

The relative importance of various environmental criteria should be established before bids are received. These criteria can be either “pass/fail” or relative point scores. Examples of these two types of criteria are given below:

- *Pass/Fail* - In order to “pass,” no product may contain any intentionally added ingredient that is listed as a known or potential carcinogen.
- *Relative Score* - The product in its concentrated form causes the following level of eye irritation:

None/Not an irritant	10 points
Minor/Mild	7 points
Severe/Causes Burns	3 points
Causes Blindness	0 points

If a point system will be used to rank bids, the total points possible for each criterion, and the points to be received for each possible response, should be decided in advance of the bid submissions so that it is clear that the awarding of points is impartial and not arbitrary. While it may be useful to publicize the number of points available for each criterion, some purchasers may

choose not to do this so as not to bias the bid responses. Massachusetts did not publish its point information to the bidders in advance. The point system was sealed before bids were submitted, and was only publicized afterward.

Non-environmental criteria, such as vendor support and training capabilities, should also be incorporated into the evaluation process. Decisions should be made determining the relative importance of non-environmental criteria, and whether environmental criteria will be evaluated first.

If certain criteria will be evaluated on a product-by-product basis and others on a vendor-by-vendor basis, an evaluation procedure or decision matrix should be established. Examples of issues to consider include the following:

- Will only one vendor be put on contract?
- Does the vendor need to supply enough different products to cover some minimum number of applications?
- Do all products on contract need to pass certain environmental criteria, or will the scores for each vendor be averaged, and the vendors ranked?

Massachusetts decided to put up to five vendors on contract, each covering a minimum of three passing applications (out of five listed). A point cutoff was established for products; price was only evaluated last. Other agencies use other pass/fail and points systems and require different passing scores. In Santa Monica, a single vendor was selected to supply 15 out of 17 product applications. No environmentally preferable products performed well enough to be selected in the floor finish and floor stripper applications. Therefore, these two applications were removed from the city's environmentally preferable contract and purchased separately.

Allowing time for bid clarification after receipt of responses is also important. Because these bids are complex and technical, many may contain unclear responses, lack documentation, or fail to include certain required responses. In Massachusetts, allowing adequate time for clarification helped ensure that the best products and vendor were chosen for the contract. In contrast, attorneys in Santa Monica advised city staff to evaluate vendor responses based solely upon the information contained in the submitted bids. No additional information or clarification could be accepted from vendors. This approach resulted in the majority of bids being disqualified due to incomplete responses.

Step 4: Test Product Effectiveness

Testing for effectiveness and ease of use is an essential step in purchasing environmentally preferable products. For best results, product testing should be:

- Done under normal working conditions by the janitorial staff who will eventually use the products;
- Conducted with vendor assistance and training; and
- Evaluated thoroughly via on-site observation, questionnaires, and interviews.

In addition, testing should be organized in a way that matches how janitorial work is done.

- If zone cleaning is used, where individual janitors do all cleaning work in an assigned area, then tests should feature sample products for all tasks.

- If team cleaning is used, where janitors each do one assigned task repeatedly throughout the building, then tests should feature alternative products for that one task.
- If product lines from several vendors are to be purchased, it may be easiest to have different teams of janitors test a complete product line from each vendor.

Exhibit 2 presents an evaluation checklist for use during product trials. Points can be assigned to the responses, and total scores developed for each product. Examples of actual product evaluations done by the Commonwealth of Massachusetts are available on the Internet.³

Smaller institutions or projects may not need such involved performance testing. If communication between purchasing and maintenance staff is good, informal discussions with janitors can provide the needed information to make a decision. Care should be taken, however, to assure that other considerations do not cloud the evaluation. If janitorial staff were not involved in the original decision to test environmentally preferable products, they may be biased and their responses will not reflect the actual effectiveness of the products. Also, if janitors are not adequately trained, they may use products incorrectly or for purposes not intended by the vendor, and so the products will perform poorly.

Exhibit 2
Product Trial Checklist

Product Effectiveness - How well did this product clean?

- How hard did you have to work with this product?
- Did you have to clean more often than expected?
- Did you have to use more of this product than the vendor recommended?
- Did the dispensing equipment work well?

Product Attributes - Rate product odor.

- Describe comments from building occupants.
- Did you have any personal health problems from using the product?

Overall Satisfaction - Were you satisfied with this product?

- Would you recommend this product to others?
- How helpful was the vendor training?
- Was the vendor reachable and helpful during the trials?

Step 5: Award Purchase Order(s)

For janitorial products and services, most government agencies and large businesses use multiple-year contracts with annual renewals. Three years is a common duration for such contracts. Having spent the time and effort to evaluate and test the products, it makes sense to set up purchase orders that extend beyond a single year.

Many vendors of environmentally preferable products do not yet offer items for every cleaning task. Therefore, for the present at least, a buyer may have to place orders with several vendors to get all of the cleaning products that are needed.

Directions for the Future

Environmentally preferable purchasing is an important step toward reducing the impacts of building maintenance products upon the janitorial user, building occupants, and the environment in general. In this article we have outlined some experiences with specifying, evaluating, and testing products that meet these goals. We conclude by highlighting three major problem areas that need to be addressed jointly by environmental professionals, janitorial product suppliers, and the specialty chemicals manufacturing industry.

Improved MSDSs

To be at all useful for making health and environmental decisions, material safety data sheets need to voluntarily list all ingredients in the product, not just those mandated by regulations. The relative quantity of each ingredient also needs to be stated, although providing a range such as “15% to 20%” is sufficient for most purposes.

In addition, printed MSDSs need to be well organized, legible, and complete. About a tenth of all MSDSs we have evaluated either cannot be read because of small or distorted type, or are hard to use because some of the information is in non-standard locations. In addition, many MSDSs contain the abbreviation “N/A” (Not Available) for characteristics that are essential for judging product hazards.

Finally, we encourage all product suppliers to publish their MSDSs on the Internet. Direct and instant access is far better than waiting weeks or months to receive a requested data sheet.

Better Technical Information

We suggest that vendors begin providing more information to janitors who wish to use their products. For example, we think that product literature should emphasize:

- How to store, mix, and use products
- Incompatibilities with other products
- How to easily access the supplier’s customer service system with health, safety, and environmental questions
- How to properly dispose of unused product, wastes, and containers.

Better Product Labels

We encourage nationwide development of standard janitorial product labels like those now being used for food packaging. Key information that should be displayed includes explicit identification of dangers that the product poses, a list of toxic ingredients, recommended personal protective equipment, and guidance for proper emergency response. Containers should also explain where to get more information.

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Notes

¹ Technical specifications for environmentally preferable purchasing appear on the Internet at:

Commonwealth of Massachusetts www.magnet.state.ma.us/osd/enviro/

City of Santa Monica
www.ci.santa-monica.ca.us/environment/policy/purchasing/bidspecs.htm

State of Minnesota
www.moea.state.mn.us/lc/cleaning.cfm

In addition, some example specifications are available at
<http://www.westp2net.org/Janitorial/JP4.htm>.

² Specifications for other programs are available at:

<http://www.green seal.org>
<http://www.terrachoice.ca>
www.interchg.ubc.ca/ecolabel/gen.html
www.blauer-engel.de/Englisch/index.htm

³ The Commonwealth of Massachusetts environmentally preferable purchasing program has a product trial checklist and evaluation results. The Internet URL is
<http://www.magnet.state.ma.us/osd/enviro/>

Case studies from the Commonwealth of Massachusetts and the City of Santa Monica's Environmental Purchasing Programs may both be found at www.epa.gov/opptintr/epp.

Thomas Barron is a professional engineer in Lafayette, California. In addition to the janitorial project work described here, he provides technical and educational assistance to businesses and government agencies undertaking pollution prevention programs. He may be reached via e-mail at tsbarron@ibm.net.

Debbie Raphael, formerly with the City of Santa Monica, is now with the Pesticide Reduction Program of the City and County of San Francisco. She has served as an advisor to a variety of government agencies and school districts on environmental purchasing program development. Her e-mail address is debbie_raphael@ci.sf.ca.us.

Lara Sutherland is currently an environmental analyst at the Massachusetts Office of Technical Assistance for Toxics Use Reduction. She provides technical assistance on environmentally preferable purchasing, pollution prevention for medical facilities, and other projects.

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