

Greener Chemical Purchasing: the Next Frontier White Paper

On behalf of the City of Dallas, the Chemical Strategies Partnership (CSP) developed a range of options for incorporating chemical products into the City's environmentally preferable purchasing program. This White Paper summarizes our findings and outlines greener chemical purchasing criteria and processes that may be used by other organizations. Please contact CSP for additional information on chemical management strategies and greening options.

Introduction to Green Purchasing

In the last twenty years, over eighty cities, states, public agencies and universities have joined the federal government and numerous corporations in establishing "green procurement" or "environmentally preferable purchasing" (EPP) policies. Most EPP programs initially specified purchasing environmentally friendly products that were relatively easy to identify such as recycled content paper, construction materials, or energy efficient office equipment. Such products were typically purchased if they could perform "satisfactorily" and were available at a "reasonable price." Many US public programs define "reasonable price" as 3-15% over the "less-green" alternative. Over time, programs expanded to include products with clear environmental attributes such as fuel-efficient vehicles and renewable energy.¹ Harder to evaluate products, such as office space, furnishings and chemical products have been relative latecomers to EPP programs.

Green Purchasing of Chemical Products: Some Success, Greater Challenge Ahead

Chemical products pose a particular challenge because they present a variety of environmental and safety risks that are difficult to evaluate. Product ingredients are not always disclosed and their risks are unknown to buyers who lack a background in chemistry. Even known risks are difficult to quantify to enable comparison of alternative products.

Today, approximately thirty local, state and federal EPP policies include chemical products.² However, nearly all are limited to cleaning supplies. This is because lower-toxicity products in these categories are relatively easy to design and are broadly marketed by suppliers. Their uniform nature and extensive supply have led to good coverage by eco-labels³ and the publication of relevant selection criteria that make it easy for buyers to evaluate product alternatives. Because cleaning supplies are typically purchased in bulk through a standardized purchasing process and Requests for Proposals (RFPs), environmental information can be solicited from bidders and evaluated.

Beyond the "low-hanging fruit" represented by cleaning supplies, there has been little movement to include other chemical products - such as automotive, maintenance or landscaping chemicals- in EPP programs. This is despite the fact that they account for the majority of chemical items purchased and often have the highest toxicity. The wide variety of products in these categories and lack of eco-labels or widely marketed green substitutes greatly increases the challenge of green purchasing.

¹ See Commission for Environmental Cooperation, *Environmental Purchasing Policies 101: An Overview of Current Environmentally Preferable Purchasing Policies* for an overview of EPP programs and frequently included products.

² See ISSA, *Green Cleaning Product Procurement Policies, Initiatives, and Requirements in the U.S.* for a listing of these programs.

³ Including Green Seal and EcoLogo. For a list of worldwide eco-labels, visit the Global Ecolabelling Network's (GEN) website at <http://www.gen.gt.jp>.

Overcoming the Challenge: Options to Consider

Overcoming these challenges to incorporate all chemical purchases in EPP programs will require a much greater level of effort by buyers, or the adoption of specialized tools and services. There are three options for organizations to consider:

- 1. Expansion of current purchasing processes:** Organizations can modify their current purchasing processes to incorporate chemical hazard review and greener chemical selection criteria. The remainder of this White Paper describes this option in further detail.
- 2. Green chemical procurement software:** Specialized software programs and services designed to help implement chemical EPP are available from companies such as Dolphin Software. These programs can automate the evaluation of chemical hazards, assign product scores based on the organizations' own EPP criteria, and identify less toxic substitutes. In addition, they can facilitate the overall purchasing process by generating automatic email notifications to appropriate reviewers at the appropriate stage of the process.
- 3. Chemical Management Services (CMS):** CMS is an established model in industry, whereby an outside service provider is engaged to manage chemical purchasing, inventory, delivery, regulatory compliance and/or disposal. As part of the purchasing processes, the CMS providers can be directed to incorporate review of chemical hazards and identify greener substitutes. Because the CMS business model has been demonstrated to reduce chemical purchase and management costs by 30-60%, it is possible the organization could obtain these services without extra cost or effort.

Greener Chemical Selection Criteria

The first challenge faced by EPP managers is selecting key environmental or social principles to incorporate in the program, and identifying the criteria used to evaluate compliance with the policy. The following principles and criteria are examples drawn from "best practice" public RFPs.

Principle	Criteria
Reduce air pollution	Aerosol Cans Global Warming Potential (GWP) Ozone-depleting Compounds VOC Emissions Photochemical Smog/Tropospheric Ozone Production Indoor Air Quality Impacts
Avoid animal testing	Animal Testing
Reduce fire hazard	Combustibility/Flammability
Minimize skin/eye irritation	Asthmagens Dyes/Fragrances Eye Irritation Skin Absorption/Irritation/Sensitization
Reduce product packaging	Bulk Packaging Concentrates Recycled Content of Container Container Recyclability
Lower acute and long term toxicity	Carcinogens and Reproductive Toxins (CRTs) Endocrine Modifies and PBTs Heavy Metals Ingestion/Inhalation Toxicity Neurotoxins and CNS Depressants

Principle	Criteria
Minimize water quality impacts	Aquatic Toxicity Biodegradability Eutrophication/Phosphate Content
Reduce suppliers' impacts	Corporate Environmental Commitment
Leverage supplier support	Labeling Employee Training

Once principles and criteria are decided upon, they must be converted into specific indicators that will determine whether or not the criteria have been met. For example, “the product must not contain more than X% of suspected carcinogens A, B, or C.” Finally, indicators are incorporated in a pass/fail or relative scoring system that enables rating and comparison of alternative products.

Examples of principles, criteria, indicators and scoring systems can be found in past RFPs for cleaning products issued by cities and states.⁴ Because product categories differ widely in terms of available ingredients, managers will need to adjust indicators and scoring systems to avoid excluding every product available in the market.

Applying the Criteria: Chemical Review and Selection Processes

An organization’s existing chemical purchasing processes can be modified by the addition of two sub-processes that incorporate the selection criteria outlined above.

A. “Green” RFP Development Sub-Process

For chemicals purchased under bulk purchase contracts, criteria may be incorporated in RFPs issued. Thus, it will be the responsibility of the vendors to provide self- or third-party certification that their product meets individual criteria. Based on this information, products may be qualified/disqualified, or assigned a relative score to enable comparison of alternatives. All products evaluated via a Green RFP process should be added to the Approved/Rejected list (below).

B. Individual Chemical Review Sub-Process

For chemicals purchased individually, there is not an opportunity to incorporate environmental criteria in an RFP and await supplier response. Managers must then implement a process internally like the one outlined below (see also Figure 1).

- 1. Check “Approved/Rejected” Chemical List:** The most significant change most chemical purchasers will face is the imposition of a new first step in the purchase process: an “On Demand Review” of an organization-wide Approved/Rejected Chemical List. If the desired product (or an acceptable substitute) is found on the Approved list, it may be purchased with no further review. If it is found on the Rejected list, the corresponding Approved chemical should be purchased instead. The Approved/Rejected list will be developed over time as chemicals requested or held in inventory are reviewed and approved/rejected by the process described below. A common Approved/Rejected list shared among departments will accelerate the list development process and reduce burden on staff.
- 2. Chemical Hazard Review**
If the desired chemical is not listed on the “Approved / Rejected” list, it must be reviewed for human and environmental hazards as follows:

⁴ For example, see City of Seattle RFP (www.seattle.gov/environment/Documents/JanitorialSpecs.pdf) and Massachusetts RFR (www.newdream.org/procure/products/MassRFP.pdf).

a. Check for eco-label certification

If the desired product (or an acceptable substitute) has an eco-label certification deemed acceptable by the organization's program managers, it may be purchased with no additional review, and added to the Approved chemical list.

b. Check MSDS hazard rating

If the product (or an acceptable substitute) is not eco-label certified, an authorized and trained manager should check the product's MSDS HMIS or NFPA hazard rating scores. If a product's hazard scores are 1 or below, the product may be purchased without further review, and subsequently added to the Approved chemical list.

c. Search for and evaluate alternatives

If a product's MSDS hazard scores are greater than 1, the reviewer should search for alternatives with lower scores in green chemical catalogs and green product databases in the public domain or available for purchase. If a product is found with scores of 1 or below, it may be purchased. If no product is found, the alternative with the lowest hazard scores may be purchased and added to the Approved/Rejected list.

d. Apply criteria

If a low-hazard/"best-available" alternative cannot be clearly identified on the basis of MSDS hazard scores alone, the reviewer may apply the Chemical Evaluation Criteria described above. The reviewer may evaluate alternatives to the extent possible by comparing ingredients and product attributes found in MSDS or catalog descriptions to the criteria and standards. Based on this review, a hazard score may be assigned and used to identify the "best available" alternative for purchase and addition to the Approved/Rejected list.

Important Limitations to Consider

It is important to note there are several limitations to using an MSDS-based process to determine a product's health and environmental hazards. Overcoming such information gaps would require the burdensome process of soliciting specific ingredient information from the manufacturer and applying the criteria described above, perhaps via a green RFP.

- MSDS do not explicitly cover ecological effects
- Manufacturers not required to test combinations of ingredients for health hazards
- MSDS which have not been updated since 1994 may not contain ingredients below the 1% or 0.1% cutoff that may present health risks
- Endocrine disruptors are not required to appear on an MSDS
- Cumulative effects due to small amounts of similar chemicals are not shown

Additional limitations on the process include the need for specialized knowledge and training required by chemical reviewers, and the significant management time burden imposed.

Conclusion

Incorporating chemicals in EPP programs provides a significant opportunity to reduce worker risks and environmental impacts. It is possible to do so using internal organizational resources and publicly available information from MSDS sheets. However, the management time burden and other process limitations described above may make chemical management services and software options worth considering. Please contact CSP with for more information on any of these options.

Figure 1: Individual Chemical Review -Process Map

