



RESPONSIBLE PURCHASING GUIDE

cleaners

2ND EDITION



1	Overview
3	Social & Environmental Issues
7	Best Practices
10	Cost, Quality, and Supply
12	Policies
16	Specifications
20	Standards
24	Products
25	Calculator
27	Handy Facts
28	Definitions
30	Endnotes
33	Addendum 1: Model Policy
34	Addendum 2: Model Specification

about this guide

The Responsible Purchasing Guide for Cleaners 2nd Edition is published by the Responsible Purchasing Network in print, as a PDF file, and on the web. Print and PDF copies are available to the public for purchase. The online edition includes additional resources available to members of the Responsible Purchasing Network, including: searchable product listings, multiple policy and specification samples, comparisons of standards, and related documents. Visit www.ResponsiblePurchasing.org to purchase a copy or to access the members-only web-based edition of the Guide.

Responsible Purchasing Network © 2008

the Responsible Purchasing Network

The Responsible Purchasing Network (RPN) was founded in 2005 as the first national network of procurement-related professionals dedicated to socially and environmentally responsible purchasing. RPN is a program of the Center for a New American Dream (www.newdream.org) and guided by a volunteer Steering Committee of leading procurement stakeholders from government, industry, educational institutions, standards setting organizations, and non-profit advocacy organizations.

acknowledgements

The Responsible Purchasing Network (RPN) would like to thank the following people for assisting with the development of this Guide. Their expertise helped to ensure quality and accuracy, though RPN alone accepts responsibility for any errors or omissions. Affiliations listed below were current when input was provided to RPN and are listed for identification purposes only and do not imply organizational endorsement of this Guide.

Lead Author: Christina Moretti Contributors: Chris Geiger, Kelly Panciera; Editors: Chris O'Brien, Mary Jo Snavelly, Dave Tilford

Advisors and Reviewers: Steve Ashkin (Ashkin Group), Sandra Cannon (EcoPurchasing Consultants), Marcia Deegler (Commonwealth of Massachusetts, Operational Services Division), Stewart Fast (Terrachoice), Chris Geiger (City and County of San Francisco), James Darr (US EPA), Mark Petruzzi (Green Seal), Johanna Kertesz (State of Minnesota Pollution Control Agency)

Layout: Kim Puchir

support for this guide

This Guide was made possible in part by support from U.S. Communities, a non-profit organization providing a national purchasing forum for local and state government agencies, school districts (K-12), higher education and non-profits nationwide by pooling the purchasing power of over 87,000 public agencies; and by U.S. Communities' contracted supplier Zep, Inc., a provider of Green Seal and EcoLogo certified cleaning products.



DISCLAIMER

In preparation of this report, every effort has been made to offer the most current, correct, and clear information possible. Nevertheless, inadvertent errors in information may occur. In particular but without limiting anything here, the Center for a New American Dream disclaims any responsibility for typographical errors and other inadvertent errors in the information contained in this report. If misleading, inaccurate, or inappropriate information is brought to the attention of the author, a reasonable effort will be made to fix or remove it.

Products and methods discussed in this report are not necessarily suitable for use in all situations. The author of this report does not represent or warrant that the products and methods discussed herein are suitable for particular applications. Persons using products or methods described in this report should independently verify that the product or method is suitable and safe for the particular situation in which use of the product or method is proposed.

By using the information in this report, you assume all risks associated with the use of referenced products and methods discussed herein. The Center for a New American Dream shall not be liable for any special, incidental, or consequential damages, including, without limitation, lost revenues, or lost profits, resulting from the use or misuse of the information contained in this report.

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily imply its endorsement, recommendation, or favoring by the Center for a New American Dream or the Responsible Purchasing Network. The views and opinions of the author expressed herein do not necessarily reflect those of the Center for a New American Dream and shall not be used for advertising or product endorsement purposes.

This Guide was printed on Cascades Rolland Enviro100 Copy
100% post-consumer recycled, processed chlorine-free paper





SOCIAL AND ENVIRONMENTAL ISSUES

The ingredients found in one out of three commercial cleaning products are potentially harmful to human health and the environment (JPPP, 1999). Custodial staff and others who spend time indoors, such as office workers, health employees (such as doctors and nurses) and students, are particularly susceptible to the health risks posed by these products. Health problems associated with cleaning chemicals include reproductive disorders, major organ damage, permanent eye damage, asthma and other respiratory ailments, headaches, dizziness, and fatigue (Culver, 2002; EPA, 2007). These chemicals can also find their way into lakes, streams, and other water bodies (some of which may serve as drinking water sources), presenting further health and environmental concerns.

BEST PRACTICES

Effective green cleaning programs designate a dedicated team of stakeholders to address the issues and execute a plan. The team should measure baseline data, set goals, adopt a policy, review and adopt standards and specifications, test products, train staff, measure progress at pre-determined intervals, recognize the efforts of those involved, and revise plans as needed.

COST, QUALITY, AND SUPPLY

Greener cleaners typically cost no more than conventional cleaners, but combining green cleaning with improved practices can lower overall cleaning costs. Using effective door mats better prevents dirt from entering facilities, limiting the need for cleaning. Likewise, reducing the number of cleaning products used can eliminate excessive and unnecessary applications. Although environmentally preferable cleaners were once perceived as less effective, this is no longer the case. Institutional users now report that green cleaners are cost competitive, perform just as well as more toxic alternatives, and are widely available through conventional suppliers. Hundreds of cleaners certified by Green Seal and/or EcoLogo are readily available in the marketplace.

POLICIES

A green cleaning policy should reference third-party standards, such as Green Seal and EcoLogo; designate staff for managing the program; allocate any budgetary needs, and include benchmarks and reporting requirements. Ever since Massachusetts issued an approved products list for environmentally responsible cleaners in 2003, cities, states, schools and universities, hospitals, corporations and other institutions have been adopting policies establishing responsible purchasing programs for cleaners. For example, in 2005 the City of New York passed Initiative Number 552-A, a law requiring the purchase of green cleaning and custodial products. There is also increasing interest in green cleaning as a component of green building certification. LEED for Existing Buildings – Operations and Maintenance (LEED-EB O&M) requires a green cleaning policy for certification, and awards up to eight additional points for green cleaning-related measures.

STANDARDS

Green Seal and EcoLogo each manage environmental certification programs that define green cleaners, and include evaluation and verification procedures to identify products meeting their standards. These standards were developed through extensive, public, consensus-based processes consistent with the ISO 14020 and 14024 environmental label guidelines. Both programs conduct on-site audits at the manufacturing facilities and reference widely accessible test methods as part of their certification process. Additionally, the U.S. Environmental Protection Agency's Design for the Environment (DfE) Formulator Initiative and NSF International provide programs designed to help manufacturers improve the environmental performance of their cleaning products and/or define protocols to help manufacturers evaluate and improve their products. The advantage of the Green Seal and EcoLogo programs is that they place more stringent requirements on product ingredients than DfE, which does not address certain categories of ingredients such as endocrine-disrupting chemicals. However, the advantage of DfE is that it more completely addresses the environmental impacts of the entire manufacturing process.

PRODUCTS

The RPN products database includes over 1600 GreenSeal and/or EcoLogo certified products from 229 manufacturers, including over 40 products from Zep Manufacturing, whose certified products are available through a U.S. Communities administered group contract, which was competitively bid by the County of Dallas, Texas and is available for use by state and local government, and non-profit organizations including schools and universities. In the product database in the online edition of this Guide, click the U.S. Communities link in the contract column to view the contract documents and request that a representative contact you.



The ingredients found in one out of three commercial cleaning products are potentially harmful to human health and the environment (JPPP, 1999).

Custodial staff and others who spend time indoors, such as office workers, health employees, and students, are particularly susceptible to the health risks posed by these products. Health problems associated with cleaning chemicals include reproductive disorders, major organ damage, permanent eye damage, asthma and other respiratory ailments, headaches, dizziness, and fatigue (Culver, 2002; EPA, 2007). These chemicals can also find their way into lakes, streams, and other water bodies (some of which may serve as drinking water sources), presenting further health and other environmental concerns.

HAZARDOUS SUBSTANCES

Cleaning products contain a variety of hazardous substances, including Alkylphenol Ethoxylates (APEs), carcinogens, corrosives, and volatile organic compounds (VOCs). Furthermore, many cleaning products in concentrated form are considered hazardous waste, which presents handling, storage, and disposal concerns (EPA, 2000; EPA, 2003).

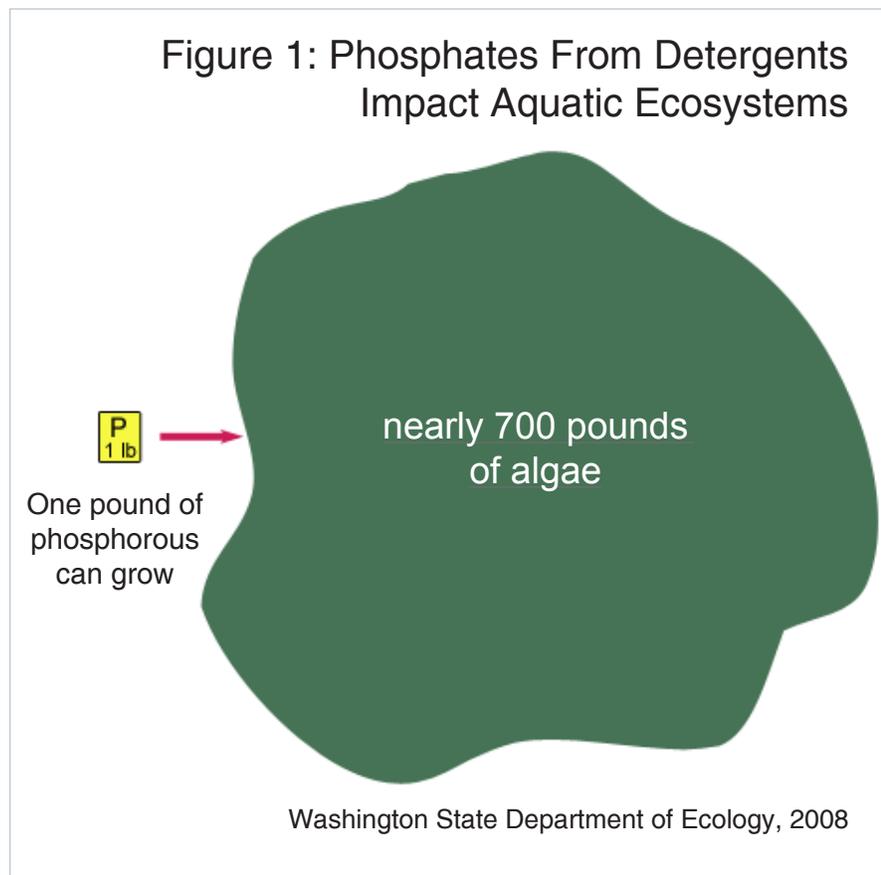
Common cleaning ingredients that raise human health and environmental concerns include:

- ▶ **Corrosive chemicals and strong irritants** such as chlorine-based cleaners, are known to cause serious skin or eye damage (HPC 2006). Products with a very high or very low pH level are also strongly irritating to the skin or eyes and should be avoided.
- ▶ **Fragrances** are added to products such as detergents and fabric softeners and can cause respiratory irritation and headaches and are particularly harmful to those with asthma or allergies (NG 2006).
- ▶ **Volatile organic compounds (VOCs)** are found in most conventional cleaning products and contribute to poor indoor air quality, often prompting asthma attacks. Outdoors, VOCs are linked to smog formation.
- ▶ **Carcinogens** and a variety of other hazardous chemicals are present in many cleaners at low toxicity levels. Some have been listed by sources such as the U.S. Department of Labor as known carcinogens especially when mixed with other compounds in the atmosphere. Long-term exposure to carcinogens drastically increases the risk of developmental disorders and cancer. Chemicals including diethanolamine (DEA) and triethanolamine (TEA), commonly found in all-purpose cleaners and detergents, react with contaminants, mainly nitrate in detergents, and form carcinogens that can readily penetrate the skin (ToxNET 2008).

- ▶ **Alkylphenol ethoxylates** (APEs) break down and produce compounds that are suspected aquatic toxins and human endocrine disruptors. Endocrine disruptors act as artificial hormones in the human body, potentially causing developmental disorders. The hormone-like effects of APEs observed in laboratory studies are similar to the reproductive and developmental disorders seen in wildlife exposed to polluted waters.

WATER

Detergents disposed into sewer systems can contaminate local freshwater supplies. In a May 2002 national study of stream water contaminants, the U.S. Geological Survey found persistent detergent metabolites in 69% of streams tested (NG, 2006). Phosphates from detergents overload aquatic ecosystems with nutrients. With excess nutrients available, algae blooms on the water's surface, blocking out sunlight and causing reduced plant growth below the surface. When plants stop photosynthesizing, they fail to produce oxygen, an essential element of any healthy aquatic ecosystem. Fish and other aquatic animals die without sufficient dissolved oxygen supplies. One pound of phosphorous can fuel growth of nearly 700 pounds of algae (DOE, 2008), leading to further dissolved oxygen depletion as the algae decomposes. Some algal blooms are also toxic and carcinogenic (EPA, 2004)



Bans on phosphorus-containing detergents in Canada, the EU and Japan, have led to phosphorous-free laundry detergents on the United States market. Phosphates have been banned in most states but they are still used in other detergents, such as those used in automatic dishwashers. In fact, dishwashing detergents account for an estimated 10 to 12 percent of the phosphorous entering municipal wastewater plants in Washington State (DOE, 2008). Other powdered detergents may contain high levels of sodium filler since sodium easily dissolves in water. However, higher sodium concentrations make it difficult for waste water to be re-used in a safe and affordable way. Water containing high levels of salt negatively affects soil and plant life, as well as metal pipes and equipment.

SOCIAL RESPONSIBILITY

Institutions have a responsibility to protect the health and safety of all workers and users of their facilities. Those who spend much of their time indoors, like students, patients, and office workers, are particularly susceptible to health problems caused by cleaning products. According to a survey conducted by Corporate Express, nearly one in three workers say they possess allergies that are aggravated by environmental conditions in their offices (CE, 2007). Four million janitors in North America also experience unnecessarily high injury rates with some experts estimating that 6 out of every 100 are injured by the chemicals they use (Culver, 2002). Studies have shown that janitorial workers have some of the highest rates of occupational asthma in the country (Culver, 2002). Children and younger students are especially vulnerable to the chemicals found in cleaning agents because they have the most contact with their surroundings and are most susceptible to the long term impact of chemicals on their developing bodies (Landrigan, 2004).

AIR QUALITY

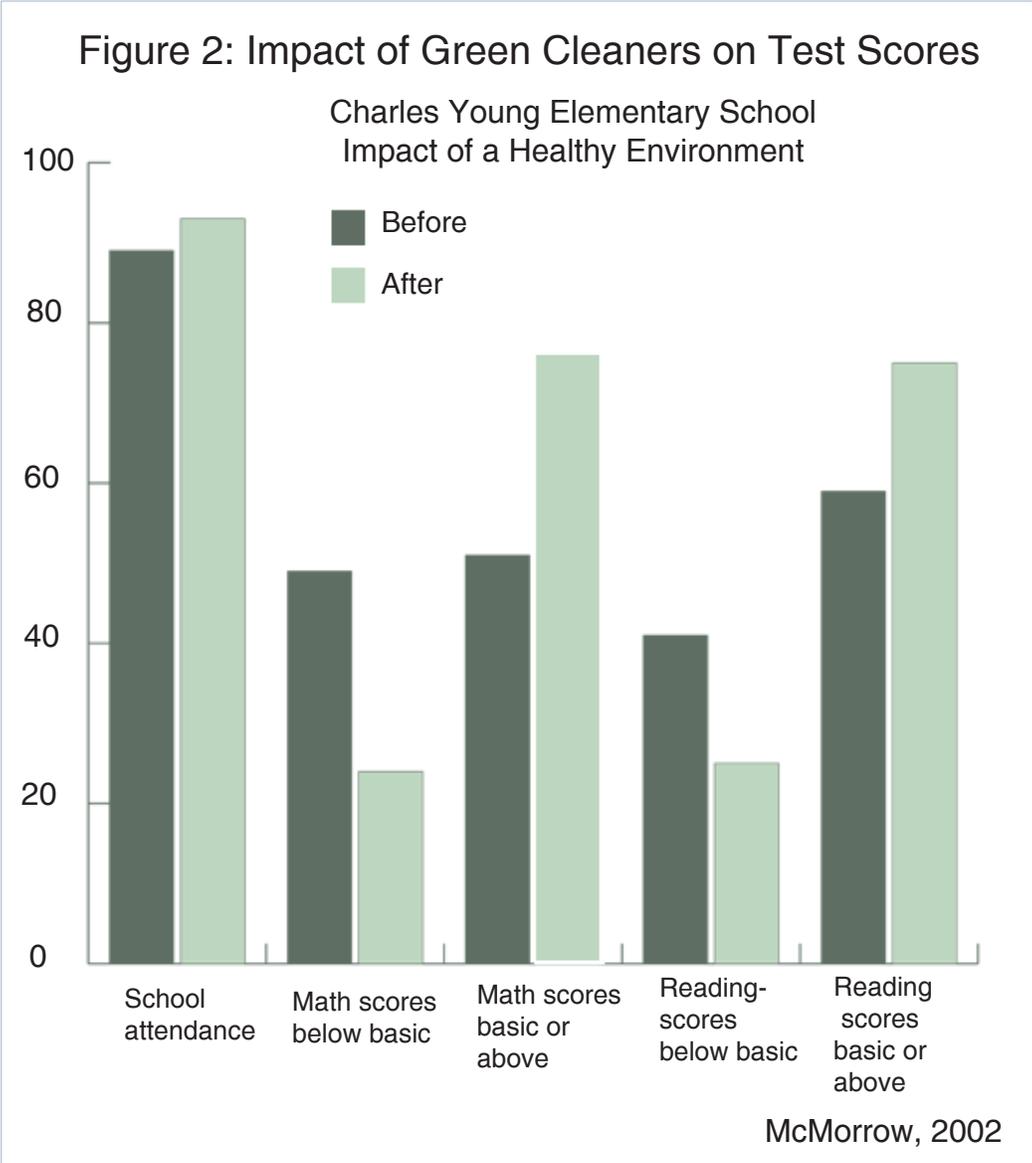
Volatile organic compounds (VOCs) contribute to poor indoor and outdoor air quality and are found in many cleaning products. General purpose cleaners contribute approximately eight percent of the total non-vehicular outdoor VOC emissions. Air quality is affected at every level of production and use of cleaners. During transportation, chemicals can leak and release toxins into the atmosphere and surrounding communities.

Those particularly at risk are people who spend a majority of their time indoors. On average, Americans spend about 90 percent of their days indoors where air pollutants can be two-to-five times higher than outdoor levels (OFEE, 2007). Exposure to these compounds can create health risks, including: respiratory irritation and asthma; eye and skin irritation; nausea; headache; and cancer. An article in the *Journal of Occupational and Environmental Medicine* documented a 2003 study that correlated a high association of asthma with exposure to cleaning products. Of the 1,915 confirmed cases of work-related asthma in this study, 12% were associated with workplace exposure to cleaning products (Sattler, 2004). Switching to green cleaners can significantly improve indoor air quality; reduce cleaning-related health problems and absenteeism, and increase productivity and morale (Fisk, 1997). Statistics show that improved indoor air quality from green cleaning has increased student performance significantly in math and science (McMorrow, 2002). Charles Young Elementary

School in Washington, DC implemented a program that addressed total environmental quality, specifically green cleaning maintenance. (See Figure 2)

ENERGY AND GHG EMISSIONS

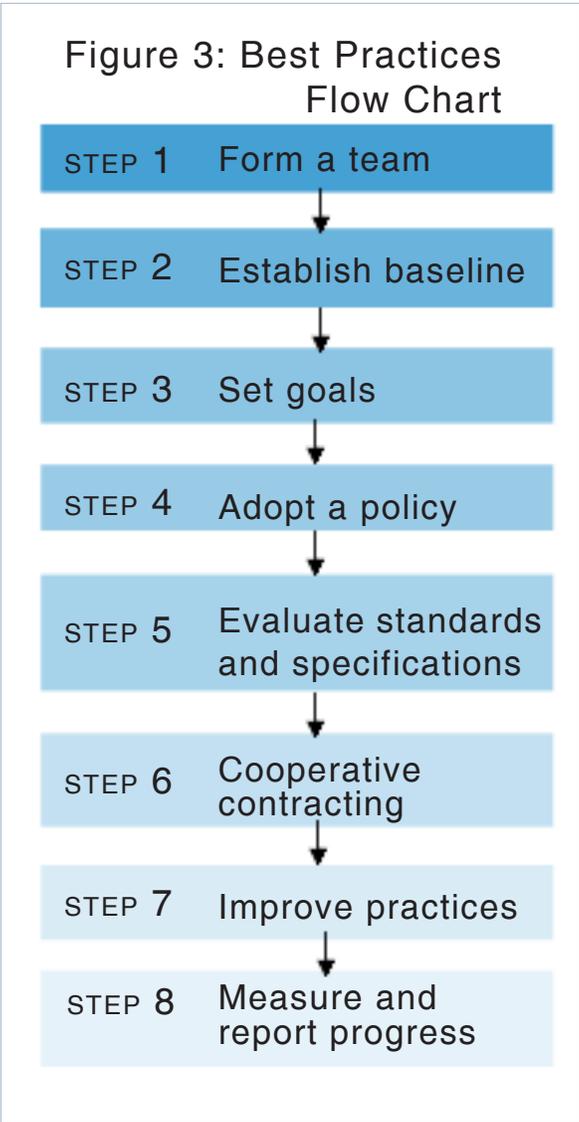
Approximately 5 billion pounds of institutional cleaning and coating chemicals are used annually in America today (OS, 2008). The chemical industry uses fossil fuels for energy in the production of cleaners. Fossil fuels are non-renewable resources that emit CO₂ into the atmosphere, a major cause of global warming. Production of cleaners requires energy from these fuels during raw material extraction, manufacturing, transportation, use and disposal. Petroleum and natural gas are the major sources of hydrocarbons from which the chemicals are made. Energy is also used to mine phosphates, carbonates and silicates that are used in cleaners to remove grease and oil from surfaces.





The most successful green cleaning programs encompass more than just the procurement of better products.

The following Best Practices help to structure and implement green cleaning programs that are designed to produce measurable results while remaining flexible.



FORM A TEAM

The first step in addressing the environmental and human health effects of cleaning products is to assemble a dedicated team to make improvements to your cleaning program. The team should include representative stakeholders, including procurement staff, managers, custodians and facility staff, building occupants, and others affected by the cleaning program. Together, the team will design and implement an overall cleaning program, including decisions regarding procurement, and the use and disposal of cleaning products, and will measure and report results over time.

ESTABLISH BASELINE

Inventory your consumption and measure your environmental impact. Which cleaning products are currently used and in what quantities? Which hazardous chemicals do they contain? How much packaging waste do they produce? Use the [Green Cleaning Pollution Prevention Calculator](#) to project environmental benefits of improving practices and switching to Green Seal certified cleaners.

SET GOALS

Critically examine the baseline data and identify areas for improvement. Set specific targets for cost reductions, the number and volume of cleaners used, and the human health and environmental consequences associated with the goals. Common goals include reducing employee absences due to health issues associated with cleaning chemicals, eliminating or limiting the use of specific hazardous chemicals, reducing packaging waste, improving indoor air quality, and lowering cleaning costs .

ADOPT POLICY

Adopt a policy that formalizes the institution's commitment to purchasing cleaning products that minimize effects on human health and the environment. The New York State Green Cleaning Law of 2005 requires the purchase of green cleaning and custodial products in all state agencies, departments, public benefit corporations and public authorities. See the [Policies](#) section for examples.

EVALUATE STANDARDS AND SPECIFICATIONS

After establishing the baseline and setting goals, draft specifications that meet criteria intended to help achieve those goals. Rather than developing product qualifications from scratch, save time by referring to existing standards and specifications used by other institutional buyers. Requests for bids should require that products meet or exceed standards such as EcoLogo and Green Seal. See the [Specifications](#) section for examples of model specifications.

COOPERATIVE CONTRACTING

Cooperative contracts decrease the administrative costs of contracting and attain lower prices by leveraging the buying power of a large group. One large group purchasing organization is U.S. Communities, a non-profit entity that provides a national purchasing forum for local and state government agencies, school districts, higher education and non-profits and pools the purchasing power of over 87,000 agencies. U.S. Communities administers a competitively bid contract for Green Seal and EcoLogo certified cleaners from Zep Manufacturing. These products are all included in the database in the online version of this Guide, along with links to the U.S. Communities contract documents.

IMPROVE PRACTICES

There is more to green cleaning than just switching products. Training custodial staff and modifying cleaning protocols can make a big difference in the effectiveness of a green cleaning program. Here are a few guidelines for maximizing the benefits of green cleaners:

- ▶ **Streamline procurement processes** so that only those cleaners necessary for established uses are purchased.
- ▶ **Improve employee training** to ensure that custodial workers are using cleaning products properly. According to green cleaning expert Steve Ashkin, founder of the Ashkin Group LLC, 90 percent of cleaning costs are labor, while only 2-

5 percent are chemical costs. If workers are misusing products (whether they are conventional or green), facilities might be spending more money than necessary and be missing the greatest opportunities to protect human health, the environment, and the value of built facilities.

- ▶ **Use better cleaning equipment.** Place doormats at entryways to prevent dirt from entering buildings. Use microfiber mops and cloths to reduce the need for cleaning chemicals. Use high efficiency filtration vacuum cleaners to reduce the dust generated by older vacuum technologies. High Efficiency Particulate Air (HEPA) Filtration Systems are up to 99.97% efficient in removing particles as small as 0.3 microns.
- ▶ **Clean by need rather than schedule,** especially for highly polluting cleaning activities. For example, some institutions are forgoing scheduled floor stripping in favor of flexible timelines that allow floors to be stripped only when needed. This strategy is encouraged by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) standard for existing buildings.
- ▶ **Use recycled-content products.** U.S. federal agencies and others using federal funds are required to buy recycled-content products, including custodial supplies such as paper towels, tissue products, and trash bags. The U.S. Environmental Protection Agency recommends recycled-content percentages for these and other products at in the Comprehensive Procurement Guidelines. See [Policies](#) section for details.
- ▶ **Choose third-party certified and biobased products.** The easiest way to choose healthier cleaning products with lower environmental impacts is to look for third-party certification, such as Green Seal or EcoLogo (see Standards section below). In addition to certification, seek "bio-based" products containing material derived from soybeans, corn, wheat cotton and other agricultural products. Generally speaking, bio-based active ingredients have less of an impact on the environment because they are able to biodegrade quickly without the release of harmful chemical byproducts. Efforts to develop and stimulate the use of bio-based products through federal legislation dates back to 1999. Executive Order 13134 (1999) requires the federal procurement of biobased products. The 2002 farm bill further developed this strategy by mandating that the U.S Department of Agriculture (USDA) establish a preferred procurement program for biobased products. Designated products and other information on the USDA program are available at www.biopreferred.gov. See the [Policies](#) section for more details.

MEASURE & REPORT PROGRESS

Use the Green Cleaning Pollution Prevention Calculator to measure reductions in hazardous substances by switching to environmentally preferable cleaning practices and products. Schedule regular assessments to measure the program's success, checking to see if predetermined benchmarks are being achieved. Reward or recognize the stakeholders responsible for achieving success. Identify and address any obstacles that may be limiting the program's success.



COST, QUALITY AND SUPPLY

Although early users experienced variability in performance and price between environmentally preferable and conventional cleaners, these issues have largely been addressed. Institutional users now report that, in general, green cleaners are cost competitive and perform just as well as their conventional counterparts. Hundreds of Green Seal and EcoLogo certified products are available through conventional suppliers.

COST

In general, green cleaning products do not cost any more than other cleaners. In fact, some organizations have discovered significant cost savings by switching to green cleaners as part of an overall green cleaning program. TriMet, the Portland, Oregon metropolitan area's municipal bus and light rail system, experienced cleaning chemical cost savings of up to 70% by switching to a green cleaning program (IEHN, 2008).

Switching to green cleaners lowers costs associated with potentially hazardous chemical cleaning products. With an average of 6 out of every 100 janitors injured on the job when using harmful chemical cleaners, organizations are likely to incur financial losses through workers' compensation incidents. Data from the State of Washington show that losses from work-related incidents reach as high as \$725 per claim including lost work time (SPN, 2007). Many state, local and federal regulations require the safe handling and storage of hazardous chemicals. However, although regulations like these guarantee better safety for workers, they also shift increased operational and disposal expenses to end users. Green cleaners increase worker performance through improved air quality and better worker safety. See the [Social and Environmental Issues](#) section for more on this topic.

QUALITY

The EcoLogo and Green Seal standards for cleaners include performance criteria based on ASTM standards. These standards help ensure that green products meet or exceed the same performance standards of more harmful products. In numerous tests conducted by a group of large volume purchasers, all of the green products bought by the group worked as well as or better than other cleaners (MA, 2003). Santa Monica, the Chicago Public School System, TriMet and others have reported similar successes using green products in controlled on-site evaluations.

Green cleaners, like all cleaning products, work best when used as directed. The following resources ensure the highest efficiency and quality performance from green cleaners:

- ▶ **Advanced cleaning equipment** will hamper the release of harmful particulates and toxic substances into the environment. For example, microfiber dust mops are more effective at gathering dirt, soil and other particulate matter than dust pans and brooms.
- ▶ **Automatic dispensing systems** ensure proper chemical dilution ratios, minimize use and exposure to chemicals, and prevent waste of chemicals and water.
- ▶ **General purpose cleaners** eliminate the costs and inefficiencies of specialized cleaners and have proven in some cases to be just as effective. General purpose cleaners are typically good for light soils. TriMet reduced its number of cleaning products from 22 to four by switching to Sustainable Earth cleaning products (IEHN, 2008). They now use a floor stripper, a disinfectant, a glass cleaner and a tub and tile cleaner. However, TriMet has also learned that the “dwell time” time needed for these cleaners to be effective is longer and more “elbow grease” is needed.

SUPPLY

Green cleaning products are readily available. Green Seal, an independent, third-party certifier of green cleaners and other environmentally preferable products, certifies over 600 cleaning products from 155 manufacturers. EcoLogo certifies over 1,200 green cleaners from over 100 manufacturers. The DfE program recognizes over 350 qualified products. One simple avenue of access to the marketplace of green cleaners is through the U.S. Communities contract with Zep Manufacturing, a supplier of Green Seal and EcoLogo certified cleaners. The contract is open for use by local and state governments, non-profits, and public educational institutions and was competitively bid by the County of Dallas, TX.



POLICIES

Educational institutions, cities, states, counties, and a growing number of other institutions have adopted green cleaning policies. These policies mandate the creation and implementation of comprehensive green cleaning programs, often specifically requiring the use of products certified by Green Seal and/or EcoLogo.

MODEL POLICY

New York, NY. Green Cleaning Law, 2005.pdf

On December 20, 2005, the City of New York passed Initiative Number 552-A, a local law requiring the purchase of green cleaning and custodial products, providing a model green cleaning policy.

MORE SAMPLE POLICIES

STATE

Connecticut, Green Cleaning Executive Order, 2006

All state agencies, higher education agencies, institutions and contracted services associated are required to procure environmentally friendly cleaning products.

New Jersey, Green Cleaning Executive Order 76, 2006

This order recognizes the release of chemicals used in cleaning products during normal use and calls for the use of more environmentally friendly products, requiring all state agencies to switch to more “health-friendly” products as existing inventories of conventional cleaners run out.

Wisconsin, Executive Order 145, 2006

In order to promote the creation of high performance green building standards and energy conservation, this order has a clause devoted to green cleaning as a sustainable operation and maintenance procedure.

Colorado Executive Order, 2005

This executive order directs state agencies and departments to implement policies to promote environmentally preferable practices. Among these practices, state agencies and departments are directed to adopt the U.S. Green Building Council's Leadership in Energy and Environmental Design Green Building Rating System for Existing Buildings (USGBC LEED-EB), which requires that cleaning products meet the criteria of the Green Seal standard.

New York, Green Cleaning Executive Order 134, 2005

This executive order applies to all State agencies, departments and public benefit corporations and public authorities. All state agencies must procure and use environmentally preferable cleaning products selected by the Office of General Services (OGS) and the Department of Environmental Conservation (DEC), or made available through cooperative purchasing contracts.

COUNTY

Nassau County, NY, 2006

Expands the use of environmentally friendly, non-toxic cleaning products to the county's 800 buildings with 9,200 employees.

Multnomah County, OR, Green Cleaning Resolution, 2005

Multnomah County implemented a review of custodial cleaning products and strategies to replace their previous conventional cleaning system. The policy mandates that the switch be cost effective and that a variety of products be required to clean successfully.

CITY

Minneapolis, MN, 2007

Low environmental impact cleaning practices are mandated for all office spaces used by the City of Minneapolis.

San Francisco, CA 2005, 2007

San Francisco's Precautionary Purchasing Ordinance (Chapter 2 of the City's Environment Code) enabled the creation of approved lists of environmentally preferable products (SF Approved Products). The first SF Approved Products list for janitorial cleaning products was established in 2007.

New York, NY, Green Cleaning Act, 2005

This law requires that a pilot program for green cleaning products be implemented to study the feasibility of a green cleaning program. The pilot should be completed within three years and result in a feasible cleaning program to be effective June 1, 2009.

Chicago, IL, Low Environmental Impact Cleaning Policy, 2004

This order requires that the city use concentrated cleaning products that meet criteria set forth by the Green Seal Standard for Institutional Cleaners (GS-37).

SCHOOL DISTRICT

Illinois Cleaning Schools Act, 2007

This act requires that all elementary and secondary public and non-public schools with 50 or more students establish green cleaning policies.

Chicago Public Schools, Green Cleaning Policy, 2005

The Chicago Public Schools adopted the Green Cleaning Policy to eliminate hazardous substances that may deter health, attendance and performance in schools. Products must meet requirements of the Green Seal standard or California VOC limitations.

New York State Public Schools, Green Cleaning Act, 2005

New York was the first state to enact a green cleaning law for schools. The act outlines a list of required green cleaning guidelines and standards established by the state to be used in elementary and secondary schools.

FEDERAL

Comprehensive Procurement Guidelines, 2004

The Comprehensive Procurement Guideline Program was designated by the EPA to ensure the use of recycled material in the manufacturing of new products. It details a list of 8 product areas and practices for buying these products and suggested suppliers of these products. The paper and paper products category provides recommended recovered fiber content levels for commercial and industrial sanitary tissues such as paper towels, bathroom tissue, general purpose industrial wipers and paper napkins.

Farm Security and Rural Investment Act, 2002

This bill established a mandatory bio-based products purchasing program for all Federal Agencies. A designated list of bio-based products was developed by the U.S. Department of Agriculture (USDA) and is located in Section 9002. Paper, packaging, solvents and cleaners are included in this list. The Farm Security and Rural Investment Act of 2002 were reauthorized in the Food Conservation and Energy Act of 2008.

HOSPITAL

University Health Network Green Procurement Policy, 2006

The University Health Network is comprised of three hospitals located in downtown Toronto. This policy pushes for the use of products with recycled and minimal

packaging. Vendors are required to specify the quantity and type of hazardous materials present with Material Safety Data Sheets (MSDS). This policy references the Environmental Choice Program (today known as EcoLogo) and Green Seal and explicitly calls for post-consumer recycled content packaging.

CORPORATE

Corporate Express Sustainability Policy, 2008

Corporate Express is a Staples company that provides customers with a range of office products, including supplies, technology, furniture, and business services. This policy states the various ways Corporate Express pursues sustainable practices. Many of the commercial cleaning products provided by this company are certified by the US Environmental Protection Agency's Design for the Environment (DfE) program and Green Seal.



SPECIFICATIONS

Contract specifications are perhaps the most important opportunity purchasers have to affect positive change. Specify products with third-party certifications and third-party verified MSDS reports. Require suppliers to provide on-site training to insure quality performance.

The specification samples below incorporate many of the best social and environmental criteria available.

MODEL SPECIFICATION

[Harvard University, Specifications for Green Cleaning Products, 2008](#)

Harvard's Green Cleaning Program is a combined effort of Harvard Green Campus Initiative and Facilities Maintenance Operations (FMO) at Harvard University. This is a specification that pools from several governmental organizations that were the pioneers of the green cleaning movement such as Massachusetts, Seattle, Santa Monica, King County, WA, Minnesota and others. Requests for proposals should outline requirements for the following attributes:

- ▶ Packaging and Recycled Content
- ▶ Carcinogens and Reproductive Toxins
- ▶ Combustibility
- ▶ Labeling Requirements
- ▶ Skin and Eye Irritation
- ▶ Dilution Ratios and Dispensing Equipment
- ▶ Fragrances
- ▶ Eutrophication
- ▶ Toxicity
- ▶ Photochemical Smog
- ▶ Aquatic Toxicity
- ▶ Employee Training

MORE SPECIFICATIONS

STATE

Minnesota, Cleaning Supplies and Floor Care Products Contract, 2008

This Request for Proposal calls for the responder to provide cleaning supplies and floorcare products to the State of Minnesota. Section IV-A specifies Health and Environmental concerns for cleaning products. The products must not contain any ingredients that are carcinogens or that are known to cause reproductive toxicity. According to this RFP carcinogens are defined by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), US Environmental Protection Agency, or the Occupational Health and Safety Administration (OSHA). Chemicals known to have reproductive toxicity are listed by the the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986.

New Jersey RFP Environmentally Preferable Cleaning Products I, 2008 Illinois

This Request for Proposals was issued on behalf of New Jersey State Agencies and their Cooperative Purchase Partners. The RFP covers all inclusive aspects of an environmentally preferable cleaning program. Specified standards include Green Seal GS-37 and GS-40 and EcoLogo or recognition from U.S Environmental Protection Agency Design for the Environment (DfE) Formulator Program. NJ also specifies performance standards such as ASTM D5343 “Standard Guide for Evaluating Cleaning Performance of Ceramic Tile Cleaning.”

Illinois Specifications for Green Janitorial Products 2007

This bid was made to establish a contract for janitorial cleaning products that comply with the State of Illinois’ Green Cleaning Schools Act. It specifies that products be certified or in compliance with Green Seal, EcoLogo or recognized by the U.S Environmental Protection Agency Design for the Environment (DfE) Formulator Program. This document covers all aspects of a cleaning product from packaging to training to environmental attributes. Packaging must be comprised of recycled-content and be recyclable or refillable. On-site training should be provided with each product purchase. Products should also come with a complete list of chemical ingredients on their third party certified Material Safety Data Sheet (MSDS).

Connecticut, Environmentally Preferable Cleaning Products RFP, 2004

This request for proposals was administered by the Department of Administrative Services to provide Environmentally Preferable Cleaners for all using State Agencies, political sub-divisions, municipalities, schools and non-profits. Products must have received Green Seal’s GS-37 certification. The product manufacturer, their distributor or a third party must offer training or training materials on the proper use of the product and dispensing equipment at no charge. On-site training is not required but is expressed as desirable.

Pennsylvania, Cleaning Products Contract, 2004

This specifies the terms and conditions for a contract with the Commonwealth of Pennsylvania for cleaning custodial supplies. The RFP lists core category items in chart form specifying for either Green Seal, Ecologo or ASTM standard.

LOCAL

Hennepin County RFP, 2008

In order to minimize the health and environmental impacts of maintaining clean facilities, Hennepin County is requiring the use of environmentally preferable cleaning products and methods. Product areas include general-purpose cleaners, floor cleaners, bathroom cleaners, glass cleaners, carpet cleaners, disinfectants, and floor finishes and strippers. Cleaning chemicals must be certified through Green Seal GS-37 or EcoLogo or be recognized by the DfE (EPA's Design for the Environment) Program. In order to prevent waste the county requires that all packaging be recyclable.

Alameda County, Cleaning Products Request for Quote, 2005

Alameda County, in attempts to comply with the Leadership in Energy and Environmental (LEED) Existing Building standards, submitted an RFP for thirteen categories of janitorial cleaners. These specifications provide the terms and conditions for the procurement of environmentally preferable cleaning products for the maintenance services of over one hundred and sixty-six County owned and leased facilities.

San Francisco, Custodial Cleaners, 2005

The City and County of San Francisco has adopted a total of 18 mandatory specifications for the procurement of janitorial products. The first and seventh criteria areas govern issues of toxicity. The criteria specify an oral lethal dose that must not exceed 2000mg/kg, a dose that would make it toxic to human beings. Similarly, the RFP specifies an aquatic toxic level that will not harm aquatic life such as algae and fish.

UNIVERSITY

Colorado State University Environmentally Preferable Purchasing, 2007

Colorado State University Environmentally Preferable Purchasing Program specifies for products that take into consideration the long and short term costs associated with the full life cycle of the product. Cleaning products should be certified by either GreenSeal or Greenguard.

HOSPITAL

Practice GreenHealth Specification, 2008

Practice Green Health incorporates a green cleaning program by specifying for Green Seal certified products.



Standards-based certification programs help purchasers identify green cleaners. Green Seal and EcoLogo both verify that products meet standards developed through open, stakeholder-based processes consistent with the ISO 14020 and 14024 environmental label guidelines. Both programs conduct on-site audits as part of their certification process.

In addition to these certification programs, the U.S. Environmental Protection Agency's Design for the Environment (DfE) Formulator Initiative and NSF International provide programs designed to help manufacturers improve the environmental performance of their products or define protocols to help manufacturers evaluate and improve their products.

Ecolabel Certifications

EcoLogo



EcoLogo is the standards-based labeling system in the Environmental Choice Program (ECP), Environment Canada's ecolabeling program. The program certifies a range of products, including hand cleaners, window & glass cleaners, boat & bilge cleaners, vehicle cleaners, degreasers, cooking appliance cleaners, cleaning products with low potential for environmental illness and endocrine disruption, bathroom cleaners, dish cleaners, carpet cleaners, and disinfectants.

- CCD-104 Industrial Hand Cleaners (second edition: June 2006, co-published with Green Seal)
- CCD-146: (A) Window and Glass Cleaner; (B) Boat and Bilge Cleaners; (C) Vehicle Cleaner for Household and Institutional use; (E) Degreasers; (F) Industrial Cleaners; (G) Cooking appliance cleaners; (I) Cleaning Product with Low Potential for Environmental Illness and Endocrine Disruption; (J) Bathroom Cleaners; (K) Dish Cleaners; (first edition: 2005)

- CCD-147 Hardwood Floor Care Products: (second edition: February 2007)
 CCD-148 Carpet and Upholstery (first edition: June 10, 2004)

Green Seal



Green Seal is a Washington D.C.-based nonprofit, independent standard-setting organization certifying a range of products and services, including general purpose cleaners, bathroom cleaners, glass cleaners, carpet cleaners and more.

- GC-11: Powdered Laundry Bleach (first edition: August 30, 1996)
 GS-08: Household Cleaners (second edition: July 2, 2007)
 GS-34: Cleaning and Degreasers (first edition: May 1999)
 GS-37: Industrial & Institutional Cleaners (Fourth edition: August 2008)
 GS-40: Industrial & Institutional Floor Care Products (first edition: Nov. 12, 2004)
 GS-41: Industrial & Institutional Hand Cleaners (June 2006, co-published with EcoLogo)
 GS-42: Cleaning Services (first edition: Sept. 1, 2006)

Other Standards and Programs

ASTM International



Many green cleaning standards reference performance tests developed by ASTM International, an international standards development organization for commercial products. The ASTM standard development process is consensus-based with stakeholders as members representing an equal vote in determining a standard's legitimacy. ASTM International covers a wide range of cleaning products and provides guidelines for use in institutional and commercial buildings. ASTM does not verify that products are tested according to a

standard.

NSF International



NSF International is an independent non-profit organization that certifies products and writes standards for consumer goods. NSF standards provide guidance for manufacturers in establishing product stewardship practices that enhance a manufacturer's capability to minimize health and environmental impacts at all stages of the product life cycle. Currently NSF International performs third-party reviews of surfactant ingredients in cleaners. NSF reviews ingredient formulations for aquatic toxicity and biodegradability using criteria defined by the U.S. EPA DfE (Design for the Environment) Program.

U.S. Environmental Protection Agency's Design for the Environment (DfE) Formulator Initiative



The DfE Formulator Initiative works with cleaning product manufacturers interested in improving the environmental performance of their products. The DfE program reviews ingredients and recommends safer alternatives.

DfE does not recommend or endorse products, but companies that reformulate their products based on its recommendations are eligible to use the DfE logo on their product. The logo indicates that the DfE review team has screened each ingredient in the product for potential human health and environmental effects and that, based on currently available information, predictive models, and expert judgment, the product contains only those ingredients that pose the least concern among chemicals in their class. More than 160 products from 38 companies are currently eligible to use the logo. Many of the products recognized by DfE are also certified by Green Seal or EcoLogo. For a list of companies working with DfE, and the approximately 160 products eligible to use the DfE logo, visit www.epa.gov/dfe/pubs/projects/formulat/formpart.htm.

U.S. Green Building Council (USGBC) LEED



The USGBC awards buildings LEED (Leadership in Energy and Environmental Design) certifications at the Certified, Silver, Gold, and Platinum levels, based on the number of credits earned in a variety of categories. There are several versions of the LEED standards, but the most relevant for cleaners is the standard used for existing buildings, known as the LEED-EB Operations & Maintenance standard. Adopting a green cleaning policy is a minimum requirement for certification in the Indoor Environmental Quality section of the standard (EQ Prerequisite #3). Optional points toward certification can be obtained by instituting a "high-performance cleaning program" (EQ 3.1 – 1 point), which requires the use of certified products. Up to three points can

be obtained by purchasing “sustainable cleaning products and materials” (EQ 3.4-3.6). One point is attainable for every thirty percent of the total annual purchases that meet either GS-37 standards, Environmental Choice/EcoLogo standards, or—for floor care products—the California Code of Regulations on VOC levels. Additional points are obtainable by using “sustainable cleaning equipment” (EQ 3.7), and by using entryway systems that minimize the amount of dirt tracked into the building (EQ 3.8).

The LEED standard for Schools addresses similar design and management concerns in the Innovative Design and Process, Low Impact Cleaning and Maintenance Equipment Policy credit. To earn the one possible point, schools should use high efficiency, low emissions equipment. See page 75 of the LEED for Schools rating system.

GREENGUARD



The GREENGUARD Environmental Institute is a non-profit organization that oversees the GREENGUARD Certification Program, a program that seeks to establish acceptable indoor air standards for indoor products, environments, and buildings. This third-party testing program evaluates low-emitting products and materials. The GREENGUARD Indoor Air Quality Certification Program certifies products based on their measured chemical emissions levels. This incorporates the Standard for Cleaning Products and Systems and the Standard for Children & Schools. (The latter standard requires reduced chemical levels compared to the former.) Chemical emissions are measured and reviewed across a broad range of exposure levels established by the U.S. Environmental Protection Agency (EPA) and the Agency for Toxic Substances and Disease Registry (ATSDR).



RPN's online database includes 818 Green Seal certified cleaning products, and 867 EcoLogo certified cleaning products (see Standards for details), including cleaning products for general purpose, floor care, carpet, degreasers, drains, hands, hard surfaces and other industrial and institutional cleaning applications. The listings are updated regularly, but please check directly with the certifying agency to confirm a product's status. (Last updated: November, 2008)

Our database also includes over 40 Green Seal and EcoLogo certified products from Zep Manufacturing available through a U.S. Communities contract competitively bid by the County of Dallas, Texas. Click the "contract" link next to these products to view the contract documents and to have a representative contact you.



CALCULATOR

The Green Cleaning Pollution Prevention Calculator quantifies the projected environmental benefits of purchasing and using “green” janitorial services and products. It is designed to forecast the environmental benefits of reducing chemical use by implementing some or all pollution prevention measures typically involved in the routine interior cleaning of an office building. This tool also enables users to identify which green cleaning measures will have the greatest impact in reducing the use of hazardous chemicals and in preventing pollution.



The Calculator’s output applies only to standard office cleaning products and practices, and does not apply to other building maintenance issues, such as equipment maintenance, pest control, or landscaping activities.

To view the calculator visit: <http://www.responsiblepurchasing.org/janitor/>

Who Should Use This Calculator?

The U.S. Environmental Protection Agency (EPA) developed this tool for use by Federal agency environmental, health and safety facility managers, and other interested parties to estimate benefits to be achieved by adopting “green” cleaning practices. EPA anticipates that this tool will be particularly helpful in developing performance-based janitorial contracts.

How Does the Calculator Work?

Users input the following information about the building and current cleaning practices:

- ▶ Estimate of carpeted area of the building
- ▶ Estimate of hard floor area
- ▶ Types and annual amounts of cleaning products currently used to clean the building (by weight in pounds)
- ▶ Current cleaning product handling and mixing practices
- ▶ Changes to janitorial product use and cleaning practices that have or could be made

Default values will automatically appear, but users should enter actual values for each product used. The default amounts are typical for a building of 100,000 square feet. This default was chosen because it can be easily extrapolated upward to the range of office space typically occupied by federal agencies. The tool may underestimate chemical amounts for buildings that are much smaller than 100,000 square feet in size.

The Calculator analyzes this data and provides the user with summaries of how green cleaning practices will:

- ▶ Decrease total cleaning product consumption, and

- ▶ Decrease hazardous materials consumption.

Acknowledgements

EPA and the Responsible Purchasing Network wish to thank Eastern Research Group (ERG) and Thomas Barron for their support in creating this calculator.



HANDY FACTS

- ▶ Each year, the institutional cleaning industry contributes \$150 billion to the economy and uses five billion pounds of chemicals, many of which are known hazards to human health and the environment (Case, 2003).
- ▶ One pound of phosphorous can grow nearly 700 pounds of algae (DOE 2008).
- ▶ Nearly one in three workers claims to possess allergies that are aggravated by environmental conditions in their offices (CE 2007).
- ▶ According to a U.S. Environmental Protection Agency-funded project, the ingredients found in one in three commercial cleaning products are potentially harmful (JPPP).
- ▶ In a May 2002 national study of stream water contaminants, the U.S. Geological Survey found persistent detergent metabolites in 69% of streams tested (NG 2006).
- ▶ The four million janitors who keep North America's buildings clean also experience unnecessarily high injury rates with some experts estimating that 6 out of every 100 are injured by the chemicals they use (Culver, 2002).
- ▶ The Custodial Products Pollution Prevention Project estimates that the average janitor uses about 23 gallons of chemicals per year. Hazardous ingredients comprise 25% of this total (JPPP, 1999).
- ▶ Green Seal reports that cleaning products are responsible for approximately eight percent of total non-vehicular emissions of volatile organic compounds (VOCs). Furthermore, a U.S. Environmental Protection Agency (U.S. EPA) study of six communities nationwide found that indoor VOC levels are up to 10 times higher than outdoor levels. VOCs contribute to smog formation, inhibit plant growth, and can cause respiratory problems in certain people (EPA, 2000; EPA, 2003).
- ▶ Switching to green cleaners helps reduce the more than \$75 million a year U.S. institutions spend to address chemical-related custodial injuries (JPPP, 1999).
- ▶ Using safer cleaning products, in addition to better ventilation and cleaning, could improve worker productivity by between 0.5 percent and 5 percent, an annual productivity gain of \$30 billion to \$150 billion (Culver, 2002).
- ▶ Santa Monica, California documented a five percent price savings after its switch to green cleaners (EPA, 1998; EPA, 2000).
- ▶ The chemicals most frequently involved in poisonings reported to U.S. Poison Control Centers are cleaning products (EPA, 2003).
- ▶ One corporation reported that it saved 68 tons of hazardous substances annually by using microfiber mops and using washable mats at door exteriors (GCPPC, 2008).

DEFINITIONS



Asthma	A chronic inflammatory disorder of the airways that impairs breathing.
Baseline	Basic information gathered before a program begins that is used later to provide a comparison for assessing program impact.
Bioaccumulate	Process whereby harmful substances concentrate or magnify as they move up the food chain.
Biobased	Products composed in whole or in significant part of biological products, forestry materials, or renewable domestic agricultural materials, including plant, animal, or marine materials.
Carcinogen	Chemicals listed as know, probable, reasonably anticipated or possible human cancer causing agents.
Concentrate	Product that must be diluted by water prior to its use.
EcoLogo	Multi-attribute environmental certification managed by the Government of Canada.
Endocrine disruptor	Chemical that interferes with the normal function of a living organism's endocrine system.
Environmentally preferable	Products and services that have a lesser or reduced effect on human health and the environment when compared to other products and services that serve the same purpose.
General-Purpose Cleaner	Products used for routine cleaning of hard surfaces, including impervious flooring such as concrete, stone surfaces, or tile.
Green Seal	Multi-attribute environmental certification managed by Green Seal, a non-profit organization devoted to environmental standard setting and product certification.

Fragrance	An additive used in a product with the purpose of giving a scent to that product.
Hazardous substance	<ol style="list-style-type: none"> 1. A material posing a threat to human health and/or the environment, that can be toxic, corrosive, ignitable, explosive, or chemically reactive. 2. A substance that must be reported to the EPA if released into the environment.
Hydrocarbon	An organic compound consisting entirely of hydrogen and carbon.
LEED (Leadership in Energy and Environmental Design)	A building rating system developed by the US Green Building Council, includes standards for several types of buildings.
Material Safety Data Sheet	A list of hazardous material present in a product along with a detailed description of each hazardous material.
Metabolite	Any substance produced by a chemical reaction.
Post-Consumer Material	Material that would otherwise be destined for solid waste disposal, having completed its intended end-use and product life cycle.
Smog	Fog that has become mixed with and polluted by smoke.
Skin Sensitizer	A substance that will lead to an allergic response following skin contact.
Surfactant	A main ingredient found in detergents that works to reduce the surface tension of water so that substances like dirt and grease can be absorbed.
Toxic substance	A chemical or mixture that may present an unreasonable risk of injury to health or the environment.
Volatile organic compound (VOC)	Organic compound that typically vaporizes at room temperature and participates in atmospheric photochemical reactions.



Case, Scot. "Cleaning Up the Supply Chain." Inside Supply Management. April 2003.

CE- Corporate Express. "Survey: U.S Employees Prefer Companies That Incorporate Environmentally Friendly Practices in the Work Place." December 2003
 > Available at http://www.corporateexpress.com/press_2007/press_120307.html

Cook, Jonathan and Csipkay-Brehm, Geneva. "Green Cleaning in the University of Oregon Student Housing." Fall 2004
 > Available at http://www.wesclean.com/whats_new/greencleaning.pdf

Culver, Alicia et al. "Cleaning for Health: Products and Practices for a Safer Indoor Environment." INFORM, Inc.: 2002

DOE- Department of Ecology: State of Washington. "Reducing Phosphorous Pollution to Improve Water Quality." DOE Update June 2008
 > Available at <http://www.ecy.wa.gov/Programs/wq/nonpoint/phosphorus/PhosphorusBan.html>

EPA - U.S. EPA "Green Cleaning Products Outshine the Competition. EPP Update. April 2000.
 > Available at <http://www.p2pays.org/ref/13/12188.pdf>.

____ 2004 U.S EPA "The Disposal of Soaps and Detergents." April 2004.
 > Available at http://www.epa.sa.gov.au/pdfs/soaps_detergents.pdf

____2003. U.S. EPA. "Greening You Purchase of Cleaning Products." May 2003.
 > Available at <http://www.epa.gov/oppt/epp/documents/clean/cleaning1.htm>.

____1998. U.S. EPA. "The City of Santa Monica's Environmental Purchasing: A Case Study." March 1998.
 > Available at <http://www.pestinfo.ca/documents/santamonica.pdf>.

____1993. U.S. EPA. "Targeting Indoor Air Pollution: EPA's Approach and Progress." March 1993.
 > Available at <http://www.epa.gov/iaq/pubs/targetng.html>.

EnviroxClean- General Purpose Cleaning. 2008
 > Available at <http://www.enviroxclean.com/products-genl-pur-cleaning.asp>.

Green Cleaning Pollution Prevention Calculator. Environmental Protection Agency. Sept 2008.
 Available at <http://www.responsiblepurchasing.org/janitor/>.

Fisk, William and Arthur Rosenfeld, "Improved Productivity and Health from Better Indoor Environments," Center for Building Science Newsletter (now the Environmental Energy Technologies Newsletter), Lawrence Berkeley Labs,

- Summer 1997, 5, http://eetd.lbl.gov/newsletter/cbs_nl/nl15/productivity.html; EPP Update. April 2000.
> Available at <http://www.epa.gov/oppt/epp/pubs/update6.pdf>.
- HSC- Healthy Schools Campaign “The Quick and Easy Guide to Green Cleaning in Schools” 2006.
> Available at <http://www.healthyschoolscampaign.org/gc-cd/2-1-choose-products.htm>.
- IEHN- Investor Environmental Health Network “COASTWIDE LABS: PRODUCT AND STRATEGY REDESIGN IN COMMERCIAL CLEANING PRODUCTS” 2008.
> Available at <http://www.iehn.org/publications.case.coastwide.php>.
- JPPP - Custodial Products Pollution Prevention Program. Cleaning Chemical Injuries Fact Sheet.
> Available at <http://www.wrppn.org/Custodial/Be%20Healthy%20.pdf>.
- ____ 1999. Custodial Products Pollution Prevention Project. “How to Select and Use Safe Custodial Chemicals.” U.S. EPA Region X, California EPA, And County of Santa Clara: December 1999.
Available at <http://www.wrppn.org/Janitorial/Appendix%20Part%201.pdf>.
- Landrigan, P.J “Children as a Vulnerable Population,” *International Journal of Occupation, Medicine, and Environmental Health* 17, 1 (2004): 175–77.
- MA - Commonwealth of Massachusetts. Request for Response for Environmentally Preferable Cleaning Products (RFR #GR016). Awarded April 2003.
> Available at <http://www.newdream.org/procure/products/MassRFP.pdf>.
- McMorrow- McMorrow Report.com “Nation’s Businesses Find Improved Work Environment & Health with Green Cleaning.” *Corporate and Institutional Facilities Market Trends & News*. 2002.
> Available at <http://mcmorrowreport.com/articles/greenclean.asp>.
- OFEE- Office of the Federal Environmental Executive. Green Janitorial Products and Services. Aug. 2007.
> Available at <http://www.ofee.gov/gp/greenjanitorial.html>.
- OS- OneSource. “The Need for Green Cleaning Solutions.” 2008
> Available at http://www.one-source.com/en/green_clean.html.
- NG- National Geographic “Green Guide Products Report” 2006
> Available at <http://thegreenguide.com/reports/product.mhtml?id=15>.
- SPN- Sustainable Purchasing Network “Guide to the Business Case & Benefits of

Sustainability Purchasing” March 2007

Sattler, Barbara and Condon, Maria. “Cleaners Disinfectants, Sterilizers.” Nov. 2003.

> Available at <http://www.marylandrn.org/documents/CleanersSterilantsDisinfectants.pdf>.

ToxNET- Toxicology Data Network 2008

> Available at <http://toxnet.nlm.nih.gov/>.



ADDENDUM 1: MODEL POLICY

New York, NY Green Cleaning Law, 2005

On December 20, 2005, the City of New York passed Initiative Number 552-A, a local law requiring the purchase of green cleaning and custodial products. This initiative has become a national model green cleaning policy.

See attached for complete policy.



Harvard University, Specifications for Green Cleaning Products, 2008

Harvard's Green Cleaning Program is a combined effort of Harvard Green Campus Initiative and Facilities Maintenance Operations (FMO) at Harvard University. This is a specification that pools from several governmental organizations that were the pioneers of the green cleaning movement such as Massachusetts, Seattle, Santa Monica, King County, WA, Minnesota and others. The following includes environmental requirements that should be specified in all requests for proposals

- ▶ Packaging and Recycled Content
- ▶ Carcinogens and Reproductive Toxins
- ▶ Combustibility
- ▶ Labeling Requirements
- ▶ Skin and Eye Irritation
- ▶ Dilution Ratios and Dispensing Equipment
- ▶ Fragrances
- ▶ Eutrophication
- ▶ Toxicity
- ▶ Photochemical Smog
- ▶ Aquatic Toxicity
- ▶ Employee Training

See attached for complete specifications.

Donna De Costanzo, Legislative Attorney

Addendum I: Model Policy
New York, NY Green Cleaning Law, 2005

THE COUNCIL

Report of the Governmental Affairs Division
Marcel Van Ooyen, Legislative Director

COMMITTEE ON CONTRACTS
ROBERT JACKSON, CHAIR

December 20, 2005

Proposed Int. No. 552-A: By Council Members Moskowitz,
The Speaker (Council Member Miller), Gennaro, Quinn, Baez,
Brewer, Comrie, Fidler, Gentile, Gerson, Koppell, Liu, Martinez,
Nelson, Recchia Jr., Reed, Sears, Stewart, Weprin, DeBlasio, James,
Barron, Perkins, McMahon, Reyna, Monserrate, Vallone Jr., Yassky,
Gioia, Sanders Jr., Katz, Lopez and Palma

Title: A Local Law to amend the
administrative code of the city of New York, in relation to the
purchase of green cleaning and other custodial products.

I. Introduction

On December 20, 2005, the Committee on Contracts, chaired by Council Member Robert Jackson, will vote on Proposed Int. No. 552-A, a bill that would amend the administrative code in relation to the purchase of green cleaning and other custodial products. The Committee held a hearing on a previous version of the legislation on September 26, 2005.

II. Health and Environmental Impacts of Traditional Cleaning Products

One out of three commercial cleaning chemical products contains ingredients that are harmful to human health or the environment.^[1] Such ingredients may result in eye, skin or respiratory irritation, or may be carcinogens, reproductive toxins or other hazardous substances. In California, it was estimated that cleaning products contribute approximately 8% of total non-vehicular emissions of volatile organic compounds – which contribute to smog formation and respiratory problems.^[2] Certain products may also contain ingredients, such as phosphorus and heavy metals, which are toxic to aquatic life.

The quality of our indoor air is extremely important since most people spend about ninety percent of their time indoors.^[3] In fact, the U.S. Environmental Protection Agency (EPA) has found that indoor air pollutant levels can be 2 to 5 and occasionally more than one hundred times greater than outdoors.^[4] The agency and its Science Advisory Board have “consistently ranked indoor air pollution among the top five environmental health risks to the public.”^[5] There are environmentally preferable alternatives, however, to standard cleaning products, which can result in improved indoor air quality and enhanced environmental health.

III. Experience in Other Jurisdictions

A number of jurisdictions have already taken steps to use environmentally preferable cleaning

products, including the cities of Santa Monica,^[6] Seattle, San Francisco and Austin, the states of Vermont, Massachusetts and Minnesota and the federal government. In addition, the Governor of New York recently issued Executive Order No. 134, which requires State agencies to use cleaning products that minimize potential human health and environmental impacts.^[7] Although the Executive Order does not apply to City agencies, it encourages local governments and school districts to “review their purchasing and use of cleaning products” and similarly to select products having less harmful properties. The Order directs the New York State Office of General Services to offer assistance to local governments and school districts to achieve these goals. New York State also recently adopted legislation that requires the use of environmentally sensitive cleaning and maintenance products for use in elementary and secondary school facilities.

IV. Cost and Availability of Green Cleaning Products

It appears that the switch to “green” cleaning products typically does not result in greater expense. In fact, Santa Monica experienced a five percent reduction in cost after its transition.^[8] “Other public purchasers, including the U.S. Department of the Interior (including several National Parks);^[9] the Chicago Public School System; Seattle . . . the States of Illinois, Massachusetts, Minnesota, Missouri, Pennsylvania and Vermont; as well as Sarasota County, FL and Alameda County, CA, also report that safer cleaners are cost competitive.”^[10] In addition, government analyses suggest that improving buildings and indoor environments, including using safer cleaning products and better ventilation, could reduce health-care costs and sick leave and increase worker productivity by 0.5 – 5%.^[11]

In addition, many green cleaning products appear to be readily available, as there are a number of companies that manufacture them. These companies have responded to greater consumer demand for these products, resulting from the emergence of information regarding the risks posed by some

cleaning products.^[12]

V. Analysis of Proposed Int. No. 552-A and Comparison to the Bill Heard by the Committee on September 26, 2005

Proposed Int. No. 552-A (the “Bill”) that is currently before the Committee differs from the previous version of the legislation that was heard on September 26, 2005 (the “September 26, 2005 Bill”), in that it incorporates a pilot program for the testing and evaluation of green cleaning products, pursuant to which the City will determine the feasibility of using such products in City facilities, prior to its purchase and use of such products citywide.

September 26, 2005 Bill

The September 26, 2005 Bill set forth requirements for the purchase by a City agency or contractor of general purpose cleaners, bathroom cleaners, glass cleaners, carpet cleaners, disinfectants or sanitizers, floor finishes and floor strippers. These requirements included the meeting of Green Seal^[13] standards and were primarily based upon an approach developed by a group of state and local government purchasers organized by the Center for a New American Dream.^[14] The September 26, 2005 Bill contained certain exemptions for products used in a food preparation area or medical facility and would have required that City agencies and contractors make best efforts to purchase degreasers, graffiti removers, furniture polishes and metal cleaners that met as many of the requirements set forth in Green Seal standard GS-37 as possible.^[15] In addition, the legislation would have required that agencies and contractors make best efforts to purchase products with certain other desirable characteristics, such as the absence of any known respiratory irritants or mutagens.

-

The Bill Currently Before the Committee

Sections one and two of the Bill respectively contain the Statement of Findings and Purpose and the title of the local law. Section three of the Bill establishes the green cleaning pilot program, which the Director of Environmental Purchasing (the “Director”) shall administer, and sets forth the framework for such program. The Director shall develop a list of all cleaning products currently used in large quantities by City agencies and select product categories for inclusion in the pilot program. In addition, the Director must establish health and environmental criteria for selecting products to be tested and evaluated pursuant to the program. The Director must then select environmentally preferable cleaning products for inclusion in the program that meet the established health and environmental criteria, in addition to a representative sample of facilities owned by the City within which to implement the program. Where the Director selects a product for testing and evaluation in a product category for which an applicable Green Seal standard exists, the Director shall, to the extent practicable, direct that the product, at a minimum, meet such Green Seal standard, with the exception of product packaging and concentrate requirements.

No later than one year after the date of enactment of the Bill, the Director must develop and publish a pilot program plan for the testing and evaluation of environmentally preferable cleaning products, which shall be immediately distributed to all agencies participating in the pilot program, in addition to the Mayor and the Speaker of the Council. Any update or modification to such plan shall immediately be distributed as described above.

The testing and evaluation process of the pilot program shall assess products based on effectiveness, health and safety, costs and savings. No later than three years after the enactment of the Bill, the Director shall submit a report to the Mayor and the Speaker of the Council, which details the results of the pilot program and shall include, among other things, a determination as to the feasibility of using environmentally preferable cleaning products in each of the product categories included in the pilot program citywide in facilities, or portions thereof, owned and/or leased by the City. For any

facility type or specific application for which the Director determines that the use of such products in a specific product category is not feasible, a description of the reasons for such lack of feasibility and all efforts made to successfully use such products in such facility type or application shall be included in the report. The Bill also provides that the Director may, on an ongoing basis, test and evaluate environmentally preferable cleaning products to determine the feasibility of using such products by the City.

Section four of the Bill establishes a green cleaning technical advisory committee, which shall provide advice and recommendations to the Director for the duration of its term on the green cleaning product pilot program. Such committee shall be comprised of seven members, two of whom shall be appointed by the Speaker of the Council and five by the Mayor. The members, who shall have technical, scientific or other relevant experience regarding the procurement or use of green cleaning products, shall be appointed no later than March 3, 2006 and shall continue to exist until three years after the enactment of the Bill.

Section five of the Bill adds a new subchapter six to chapter 3 of title 6 of the Administrative Code of the City of New York, which would consist of Section 6-316. Section 6-316 requires, beginning June 1, 2009, the City to purchase and use green cleaning products to the extent and in the manner that such use is determined to be feasible through the pilot program or through any other testing and evaluation conducted by the Director. Such green cleaning products shall meet the health and environmental criteria for the relevant product category as established by the Director under the pilot program or any such criteria as updated or revised by the Director.

In addition, no later than June 1, 2009, the Director shall publish a list of green cleaning products that may be purchased by the City to comply with section 6-316, which, at least once annually, shall be reviewed and revised, if necessary.

The Bill would become effective immediately, except for section five, which would take effect June 1, 2009. However, the local law will only go into effect if four other environmental purchasing bills

also take effect. These bills create a Director of Citywide Environmental Purchasing (Proposed Int. 534-A), and set standards for goods purchased by the City relating to hazardous content (Proposed Int. 544-A), recycled content (Proposed Int. 545-A) and energy efficiency (Proposed Int. 536-A).

Proposed Int. No. 552-A

By Council Members Moskowitz, The Speaker (Council Member Miller), Gennaro, Quinn, Baez, Brewer, Comrie, Fidler, Gentile, Gerson, Koppell, Liu, Martinez, Nelson, Recchia Jr., Reed, Sears, Stewart, Weprin, DeBlasio, James, Barron, Perkins, McMahan, Reyna, Monserrate, Vallone Jr., Yassky, Gioia, Sanders Jr., Katz, Lopez and Palma

A Local Law

To amend the administrative code of the city of New York, in relation to the purchase of green cleaning and other custodial products.

Be it enacted by the Council as follows:

Section 1. Statement of findings and purpose. The Council finds that there are environmentally preferable alternatives to the products that we commonly use for routine tasks, such as cleaning and maintaining interior building finishes. Such alternatives are most beneficial to those who apply them and those who occupy buildings where such products are used. In addition to the federal government, a number of state and local jurisdictions have taken steps to purchase environmentally preferable or “green” cleaning products.

The Council finds that the purchase and use of many such environmentally preferable cleaning alternatives will result in improved indoor air quality and enhanced environmental health.

§2. This law shall be known and may be cited as the “Greening Our Cleaning Act”.

§3. Green cleaning product pilot program. a. For the purpose of this section and section four of this local law, the following terms shall have the following meanings:

(1) “Air freshener” means any product including, but not limited to, sprays, wicks, powders, blocks, gels and crystals, designed for the purpose of masking odors, or freshening, cleaning,

scenting or deodorizing the air. This term shall not include products that are used on the human body, products that function primarily as cleaning products or disinfectant products claiming to deodorize by killing germs on surfaces.

(2) “Bathroom cleaner” means any product used to clean hard surfaces in a bathroom, such as counters, walls, floors, fixtures, basins, tubs and tile. This term may include products that are required to be registered under the federal insecticide, fungicide, and rodenticide act, such as disinfectants and sanitizers, but shall not include products specifically intended to clean toilet bowls.

(3) “Carpet cleaner” means any product used for the routine cleaning of carpets and rugs. This term shall include, but not be limited to, products used in cleaning by means of extraction, shampooing, dry foam, bonnet or absorbent compound, but shall not include products intended primarily for spot removal or any products required to be registered under the federal insecticide, fungicide, and rodenticide act, such as those making claims as sterilizers, disinfectants or sanitizers.

(4) “Degreaser” means any product designed to remove or dissolve grease, grime, oil and other oil-based contaminants from interior or exterior building surfaces.

(5) “Director” means the director of citywide environmental purchasing.

(6) “Disinfectant” means any United States environmental protection agency-registered agent that is used to destroy or irreversibly inactivate infectious fungi, viruses and bacteria, but not necessarily their spores.

(7) “Floor finish” means any product designed to polish, protect or enhance floor surfaces by leaving a protective wax, polymer or resin coating that is designed to be periodically removed and reapplied.

(8) “Floor stripper” means any product designed to remove floor finish through breakdown of the finish polymers, or by dissolving or emulsifying the finish, polish or wax. This term shall not include general-purpose cleaners that can be used to clean floors, floor sealers, spray buffing products or products or equipment designed to remove floor wax solely through abrasion.

(9) “General-purpose cleaner” means any product used for routine cleaning of hard surfaces, including impervious flooring, such as concrete or tile. This term shall not include any cleaner intended primarily for the removal of rust, mineral deposits or odors; any product intended primarily to strip, polish or wax floors; any cleaner intended primarily for cleaning toilet bowls, dishes, laundry, glass, carpets, upholstery, wood or polished surfaces; or any product required to be registered under the federal insecticide, fungicide, and rodenticide act, such as those making claims as sterilizers, disinfectants or sanitizers.

(10) “Glass cleaner” means any product used to clean windows, glass and polished surfaces. This term shall not include any product required to be registered under the federal insecticide, fungicide, and rodenticide act, such as those making claims as sterilizers, disinfectants or sanitizers.

(11) “Green Seal” means the independent, non-profit organization that sets standards for environmentally responsible products.

(12) “Metal cleaner” means any product designed primarily to improve, by physical or chemical action, the appearance of finished metal, metallic, or metallized furniture or interior or exterior building surfaces, including, but not limited to fittings and decorative ornamentation. This term shall not include any product designed primarily to remove grease, grime and oil.

(13) “Sanitizer” means any United States environmental protection agency-registered agent that is used to reduce, but not necessarily eliminate microorganisms to levels considered safe by public health codes or regulations.

b. A pilot program, which the director shall administer, is hereby established to study the feasibility of using green cleaning products in city facilities.

c. The director shall develop a list of cleaning products currently used in large quantities by agencies and shall select cleaning product categories currently used by agencies that are suitable for inclusion in the pilot program. At a minimum, general-purpose cleaners, bathroom cleaners, glass cleaners, carpet cleaners, floor finishes, floor strippers and air fresheners shall be included in the pilot program if used by the city and disinfectants, sanitizers, graffiti removers, metal cleaners, furniture polishes and degreasers shall be considered for inclusion in such program.

d. For each product category included in the pilot program, the director shall establish health and environmental criteria for selecting products to be tested and evaluated in the pilot program. The following may be considered in establishing such criteria:

(1) any available scientific evidence;

(2) any specifications, guidelines or rules of other governmental agencies or jurisdictions, or organizations supporting the establishment of environmental purchasing standards;

(3) whether such products contain any known respiratory irritants, mutagens or petrochemical-based fragrances, are produced from bio-based materials, or are sold in containers that reduce worker exposure to the chemicals contained therein; and

(4) any other matter determined by the director to be relevant to determining such health and environmental criteria.

e. The director shall select environmentally preferable cleaning products in each product category for inclusion in the pilot program that meet the criteria established pursuant to subdivision d of this section. Where the director selects a product for testing and evaluation in a product category for which an applicable Green Seal standard exists, the director shall, to the extent practicable, direct that the product, at a minimum, meet such Green Seal standard, with the exception of product packaging and concentrate requirements.

f. The director shall select an appropriate, representative sample of facilities,

or portions

thereof, owned by the city within which to implement the pilot program.

g. No later than one year after the date of enactment of this local law, the director shall develop and publish a pilot program plan for the testing and evaluation of environmentally preferable cleaning products, which shall include: the list of products in each category to be tested and evaluated in the pilot program; testing and evaluation guidelines for such products; the facilities, or portions thereof, designated for inclusion in such pilot program; and any other information relating to the pilot program that the director deems appropriate. Immediately upon its publication, such plan shall be distributed to all agencies participating in the pilot program, in addition to the mayor and the speaker of the council. Any update or modification to such plan shall immediately be distributed as described above.

h. The testing and evaluation process of the pilot program shall assess products selected for the program based upon effectiveness, health and safety, costs and savings.

i. No later than three years after the enactment of this local law, the director shall submit a report to the mayor and the speaker of the council, which shall detail the results of the pilot program. Such report shall include, but not be limited to, the following:

(1) a list of the products that were tested and evaluated in each product category;

(2) a description of the pilot program process and how each product category and product was selected for inclusion in the program and tested and evaluated, as applicable;

(3) the health and environmental criteria established for each product category and, where the director has not directed that tested and evaluated products, at a minimum, meet the applicable Green Seal standard for the relevant product category where such a standard exists, with the exception of product packaging and concentrate requirements, an explanation as to why the director has not done so;

(4) the facilities, or portions thereof, in which the pilot program was implemented;

(5) the agencies whose facilities or employees were included in the pilot program;

(6) the list of cleaning products developed pursuant to subdivision c of this section, the amount of each such product purchased during the fiscal year beginning July 1, 2007, and whether or not these products meet the health and environmental criteria established by the director pursuant to the pilot program;

(7) an analysis and conclusion regarding the testing and evaluation of each product with respect to effectiveness, health and safety, and anticipated costs or savings and how such results compare to an assessment of such characteristics for the standard cleaning product used for the same purpose; and

(8) a determination as to the feasibility of using environmentally preferable cleaning products in each of the product categories included in the pilot program citywide in facilities, or portions thereof, owned and/or leased by the city, based upon effectiveness, health and safety, costs and savings of the products in such category. For any facility type or specific application for which the director determines that the use of such products in a specific product category is not feasible, the reasons for such lack of feasibility and all efforts made to successfully use such products in such facility type or application shall be described.

j. The director may, on an ongoing basis, test and evaluate environmentally preferable cleaning products, not limited to the product categories included in the pilot program, to determine the feasibility of using such products by the city.

§4. Green cleaning technical advisory committee. a. A green cleaning technical advisory committee shall be established, which shall provide advice and recommendations to the director for the duration of its term on the green cleaning product pilot program established pursuant to section three of this local law, regarding:

(1) the scope and implementation of the pilot program, including the product categories, products, facilities, or portions thereof, and agencies included in the program;

- (2) for each program category, the health and environmental criteria that products shall meet;
- (3) the testing and evaluation of products;
- (4) a determination as to the feasibility of using environmentally preferable cleaning products citywide in facilities, or portions thereof, owned and/or leased by the city; and
- (5) any other recommendations to improve upon or make the pilot program more effective, including regarding end-user outreach and training and the experience of other jurisdictions.

b. Such advisory committee shall be comprised of seven members, two of whom shall be appointed by the speaker of the council and five by the mayor. The members, who shall serve without compensation, shall have technical, scientific or other relevant experience regarding the procurement or use of green cleaning products and shall be appointed no later than March 3, 2006. A chairperson shall be elected from amongst the members. Members shall serve at the pleasure of the appointing official and any vacancy shall be filled in the same manner as the original appointment. The director may provide staff to assist the advisory committee.

c. The advisory committee shall continue to exist until three years after the enactment of this local law, after which time the committee shall cease to exist.

§5. The administrative code of the city of New York is amended by adding a new subchapter 6 to chapter 3 of title 6 to read as follows:

SUBCHAPTER 6

CLEANING PRODUCTS

§6-316 Green cleaning products.

§6-316 **Green cleaning products.** a. Beginning June 1, 2009, the city shall purchase and use green cleaning products to the extent and in the manner that such use is determined to be feasible through the pilot program established pursuant to the local law that added subchapter 6 of this chapter or through any other testing and evaluation conducted by the director. Such green cleaning products

shall meet the health and environmental criteria for the relevant product category as established by the director under the pilot program or any such criteria as updated or revised by the director.

b. No later than June 1, 2009, the director shall publish a list of green cleaning products that may be purchased by the city to comply with this section. At least once annually, such list shall be reviewed and revised, if necessary.

§6. If any section, subsection, sentence, clause, phrase or other portion of this local law is, for any reason, declared unconstitutional or invalid, in whole or in part, by any court of competent jurisdiction, such portion shall be deemed severable, and such unconstitutionality or invalidity shall not affect the validity of the remaining portions of this law, which remaining portions shall continue in full force and effect.

§7. This local law shall take effect immediately, except that section five of this local law shall take effect June 1, 2009. Provided, however, that this local law shall take effect only in the event that: Int. No. 534-A, a proposed local law to amend the administrative code of the city of New York, in relation to environmental purchasing and the establishment of a director of environmental purchasing, takes effect; Int. No. 536-A, a proposed local law to amend the administrative code of the city of New York, in relation to the purchase of energy efficient products, and to repeal subdivision a, c, d, e and f of section 6-127 of such code, takes effect; Int. No. 544-A, a proposed local law to amend the administrative code of the city of New York, in relation to the reduction of hazardous substances in products purchased by the city, takes effect; and Int. No. 545-A, a proposed local law to amend the administrative code of the city of New York, in relation to the purchase of products with recycled content, and to repeal section 6-122 and subchapter 5 of chapter 3 of title 16 of such code, takes effect.

DD LS # 1486

12-13-2005

- [1] Case, Scot, A Clean Sweep, Government Procurement, October 2004, at 12; Janitorial Products Pollution Prevention Project, What Cleaners Have the Most Risk? at <http://www.wrppn.org/Janitorial/jp4.cfm>.
- [2] U.S. Environmental Protection Agency (EPA), Greening Your Purchase of Cleaning Products, Draft 3/4, A Guide for Federal Purchasers at <http://www.epa.gov/opptintr/epp/documents/clean/cleaning.htm>; Green Seal, Choose Green Report, General Purpose Cleaners, March 1998, at 3.
- [3] Green Seal, Choose Green Report, Floor-Care Products, June 2004, at 1.
- [4] EPA, Indoor Air: IAQ Tools for Schools, IAQ Tools for Schools Kit – IAQ Backgrounder at <http://www.epa.gov/iaq/schools/tfs/iaqback.html>.
- [5] *Id.*
- [6] Santa Monica eliminated 3,200 pounds of hazardous materials by replacing traditional cleaning products with less toxic ones. EPA, Environmentally Preferable Purchasing Program, The City of Santa Monica’s Environmental Purchasing, A Case Study, EPA742-R-98-001, March 1998, at 14.
- [7] Executive Order 134, Directing State Agencies to Reduce the Environmental Impact of Cleaning of State Facilities, January 5, 2005 at http://www.gorr.state.ny.us/gorr/EO134_fulltext.htm.
- [8] The City of Santa Monica’s Environmental Purchasing at 14.
- [9] The bid that was awarded the U.S. Department of the Interior’s custodial contract in August 1999 “had the lowest price of those under consideration.” EPA, Department of Interior Focuses on Cleaning Products at <http://epa.gov/opptintr/epp/ppg/case/doicase.htm>.
- [10] *A Clean Sweep* at 14.
- [11] Improved Productivity and Health from Better Indoor Environments, CBS Newsletter, Summer 1997, at 5 at http://eetd.lbl.gov/newsletter/cbs_nl/nl15/productivity.html.
- [12] EPA, Environmentally Preferable Purchasing Guide, Greening Your Purchase of Cleaning Products, EPA742-B-01-002, December 2001, at 3.
- [13] “Green Seal is an independent, non-profit organization that strives to achieve a healthier and cleaner environment by identifying and promoting products and services that cause less toxic pollution and waste, conserve resources and habitats, and minimize global warming and ozone depletion.” Green Seal, About Green Seal, Who We Are and What We Do at <http://www.greenseal.org/about.htm>.
- [14] The Center for a New American Dream, Cleaning Products Work Group, September 2003 UPDATE at <http://www.newdream.org/procure/products/cleaners.php>; The Center for a New American Dream is a not-for-profit organization that “helps Americans consume responsibly to protect the environment, enhance quality of life, and promote social justice.” The Center for a New American Dream, The New American Dream at <http://www.newdream.org/about/>.
- [15] Green Seal, Industrial and Institutional Cleaners (GS-37), October 19, 2000 at <http://www.greenseal.org/standards/industrialcleaners.htm>.

Addendum II: Harvard University, Specifications for Green Cleaning Products, 2008

Harvard FMO Specifications for Green Cleaning Products 2008

The Harvard FMO Green Cleaning Program's criteria are based on the results of a workgroup at the Center for a New American Dream. The workgroup consisted of governmental organizations who were the pioneers of the green cleaning movement. Members included: Massachusetts, Seattle, Santa Monica, King County, Minnesota, and others. The workgroup created criteria that expanded on the Green Seal standard for Industrial and Institutional Cleaners (GS-37). The criteria was then used to create Massachusetts' RFP. The text of FMO's criteria is directly based on the Massachusetts RFP. The benefit of coming to a consensus on a single criterion is that manufacturers do not need to create products that fit into multiple criteria. They now have a single goal that they can work toward that will be accepted by many purchasers. More information on the criteria and workgroup can be found at

<http://www.newdream.org/procure/products/cleaners.php>

A summary of the criteria is followed by the specific requirements below:

SUMMARY

Mandatory Environmental Requirements

- Toxicity
- Carcinogens and Reproductive Toxins
- Skin and Eye Irritation
- Skin Sensitization
- Combustibility
- Smog, Ozone, and Indoor Air Quality
- Aquatic Toxicity
- Eutrophication
- Aquatic Biodegradability
- Concentrates
- Fragrances
- Prohibited Substances

Additional Requirements

- Training
- Packaging
- Labeling

Desirable Criteria

- Additional Training attributes
- Additional Packaging attributes
- Additional Labeling Information
- Dispensing Equipment
- Non-animal Testing
- Asthmagen Data
- Company-wide Environmental Commitment

REQUIREMENTS

1. I. Products

Harvard University's FMO is currently purchasing environmentally preferable products in the following categories:

1. General Purpose Cleaners
2. Bathroom Cleaners
3. Glass Cleaners
4. Carpet Cleaners
5. Disinfectants
6. Floor Cleaners
7. Hand Soaps
8. Janitorial Paper/Textile Supplies

The first three categories of products **must** meet the twelve criteria listed below. Criteria for the last five categories are listed individually.

2. II. Product Formulation: Mandatory Health and Environmental Specifications

3. Toxicity

The *undiluted* product **must** not be toxic to humans. Dispensing system concentrates **must** be tested as used. A product is considered toxic if any of the following criteria apply: Oral lethal dose 50 (LD50) ≤ 2000 mg/kg

Inhalation lethal concentration (LC50) ≤ 20 mg/L

If the vapor phase concentration of the product at room temperature is less than 20 mg/L, it should be tested at its saturation concentration. If it is not toxic at this concentration, it passes the inhalation criteria. Toxicity shall be measured on the product as a whole.

Alternatively, a mixture need not be tested if existing toxicity information demonstrates that each of the ingredients complies. Ingredients that are nonvolatile do not require inhalation toxicity testing, and ingredients that are not readily absorbed through the skin do not require dermal toxicity testing. It is assumed that the toxicity of the individual component compounds are weighted and summed and that there are not synergistic effects. The toxicity testing procedures should meet the requirements put forth by the Organization for Economic Cooperation and Development (OECD) Guidelines for Testing of Chemicals. These protocols include Acute Oral Toxicity Test (TG 401), Acute Inhalation Toxicity Test (TG 403), and Acute Dermal Toxicity Test (TG 402).

4. Carcinogens and Reproductive Toxins

The undiluted products **must** not contain any ingredients that are carcinogens or that are known to cause reproductive toxicity, as defined by the following agencies:

Carcinogens: International Agency for Research on Cancer (IARC), National Toxicology Program (NTP), US Environmental Protection Agency, or the Occupational Health and Safety Administration (OSHA)

Reproductive Toxicity: Those chemicals listed by the State of California under the Safe

Addendum II: Harvard University, Specifications for Green Cleaning Products, 2008

Drinking Water and Toxic Enforcement Act of 1986 (CA Code of Regulations, Title 22, Division 2, Subdiv. 1, Chapter 3, Sect. 1200, *et seq.*).

Naturally occurring elements and chlorinated organics, which may be present as a result of chlorination of the water supply, are not considered ingredients if the concentrations are below the applicable maximum contaminant levels in the National Primary Drinking Water Standards found in 40 Code of Federal Regulations (CFR) Part 141.

5. Skin and Eye Irritation

The *undiluted* product **must** not be corrosive to the skin or eyes. Dispensing-system concentrates **must** be tested as used. The undiluted cleaning product **must** not be corrosive to the skin, as tested using the Human Skin Construct systems (Liebsch et al. 2000; Fentem et al. 1998). The undiluted cleaning product **must** also not be corrosive to the eye as tested using the bovine opacity and permeability test (BCOP) (Sina et al. 1995) after a 10-minute exposure. The PMT will also accept the results of other peer-reviewed or standard in vitro or in vivo test methods demonstrating that the product mixture is not corrosive.

6. Skin Sensitization

The *undiluted* product **must** not be a skin sensitizer as tested by the OECD Guidelines for testing chemicals, Section 406. Dispensing system concentrates **must** be tested as used. The PMT shall also accept the results of other standard test methods, such as those described in Buehler (1994) or Magnusson and Kligman (1969), as proof that the product or its ingredients are not skin sensitizers.

7. Combustibility

The *undiluted* product **must** not be combustible. The product or 99% of by volume of the product ingredients **must** have a flashpoint above 150 F, as tested using either the Cleveland Open Cup Tester (ASTM D92-97) or a closed cup method International Standards Organization (ISO) 13736 or ISO 2719. Alternatively the product **must** not sustain a flame when tested using ASTM D 4206.

8. Photochemical Smog, Tropospheric Ozone Production, and Indoor Air Quality

The product *as used* **must** not contain substances that contribute significantly to the production of photochemical smog, tropospheric ozone and poor indoor air quality. The volatile organic compound (VOC) and of the product *as used* shall be determined by the CA Air Resources Board Method 310 and **must** not exceed the following:

- 1% by weight for general purpose and bathroom cleaners
- 3% by weight for glass cleaners

9. Aquatic Toxicity

The product *as used* **must** not be toxic to aquatic life. A compound is considered not toxic to aquatic life if it meets one or more of the following criteria: Acute LC50 for algae, daphnia, or fish = 100 mg/L

Addendum II: Harvard University, Specifications for Green Cleaning Products, 2008

For purposes of demonstrating compliance with this requirement, aquatic toxicity testing is not required if sufficient aquatic toxicity data exist for each of the product's ingredients to demonstrate that the product mixture complies. Aquatic toxicity tests shall follow the appropriate protocols in ISO 7346.2 for fish and in 40 CFR 797, Subpart B for other aquatic organisms.

10. Eutrophication

The product *as used* **must** not contain more than 0.5% by weight of total phosphorus.

11. Aquatic Biodegradability

Each of the organic ingredients **must** exhibit ready biodegradability in accordance with the OECD definition except for a FIFRA-registered ingredient in bathroom cleaner. However, all other ingredients in a FIFRA-registered bathroom cleaner **must** comply. Biodegradability will be measured by one of the following methods: ISO 9439 carbon dioxide evolution test, ISO 10708 (two-phase close bottle test), ISO 10707 (close bottle test), ISO 7827 (dissolved organic carbon removal). Specifically within a 28-day test, the ingredient shall meet one of the following criteria within 10 days of the time when the biodegradation first reaches 10%: Removal of dissolved organic carbon (DOC) = >70% Biological oxygen demand (BOD) = >60% % of BOD theoretical oxygen demand (ThOD) = >60% % CO₂ evolution of theoretical = >60%

For organic ingredients that do not exhibit ready biodegradability in these tests, the manufacturer may demonstrate biodegradability in sewage treatment plants using the Coupled Units Test found in OECD 303A by demonstrating dissolved organic carbon (DOC) removal >90%.

Testing is not required for any ingredient for which sufficient information exists concerning its biodegradability, either in peer-reviewed literature or databases or proving that the ingredient was tested in accordance with standard test procedures.

12. Concentrates

The product **must** be a concentrate, except for FIFRA-registered bathroom cleaners.

13. Fragrances

Manufacturers **must** identify any fragrances on their MSDS. Any ingredient added to a product as a fragrance **must** follow the Code of Practice of the International Fragrance Association.

14. Prohibited Ingredients

The product **must** not contain the following ingredients:

- Alkylphenol ethoxylates
- Dibutyl phthalate
- Heavy metals including arsenic, lead, cadmium, cobalt, chromium, mercury, nickel or selenium
- Ozone depleting compounds

III. Carpet Cleaners

Products **must** meet the Mandatory Health and Environmental Specifications established in Section II.

Products **must** exhibit a VOC limit of not greater than 1%

Addendum II: Harvard University, Specifications for Green Cleaning Products, 2008

IV. Disinfectants/Sanitizers

Products **must** meet the Mandatory Health and Environmental Specifications established in Section II EXCEPT for the active ingredients with respect to biodegradability.

Products **must** exhibit a VOC limit of not greater than 1%

Products **must** be registered by the US Environmental Protection Agency

V. Floor Care Products

1. Floor Finishes

Mandatory - The products **must** be free of zinc and other heavy metals.

Desirable - It is desirable that the products:

not contain phthalates

not contain glycol ethers or ammonia

2. Floor Strippers

Mandatory - The products **must** be free of zinc and other heavy metals.

Desirable - It is desirable that the products (in concentrate form):

have a pH between 2.5 and 12

exhibit a VOC limit of not greater than 1%

not contain glycol ethers or ammonia

3. Maintenance Products

Mandatory - The products **must** be free of zinc and other heavy metals.

Desirable - It is desirable that the products:

not contain phthalates

exhibit a VOC limit of not greater than 1%

not contain glycol ethers and/or ammonia

VI. Hand Soaps

Mandatory - The products **must not** be anti-microbial (a low level preservative is permissible, however, in order to prevent bacterial growth)

Desirable - It is desirable that products have a pH between 6 and 8.5

VII. Janitorial Paper/Textile Supplies

Paper products **must** meet or exceed the minimum federal standards and Commonwealth of Massachusetts standards for post-consumer recycled content and **must** be unbleached or bleached without the use of chlorine (Processed Chlorine Free). It is desirable that paper products have dispensing options and packaging that reduce the use of natural resources. Textile products (e.g. rags) **must** be made of reclaimed/recycled textiles. Green Seal certified products are preferred.

VIII. Additional & Desirable Requirements

1. Training

Addendum II: Harvard University, Specifications for Green Cleaning Products, 2008

Mandatory

The product manufacturer, their distributor, or a third party **must** offer training or training materials in the proper use of the product. These **must** include step-by-step instructions for the proper dilution, use, disposal, and the use of equipment.

Desirable

It is **desirable** that such training and support include, but not be limited to:

- on-site initial training for use of products
- ongoing training either on-site or at designated sites throughout the Commonwealth
- a phone number, preferably toll-free, which departments can call to receive instructions and assistance on product use

2. Packaging

Mandatory

The primary package **must** be recyclable. Alternatively, manufacturers may provide for returning and refilling their packages.

Desirable

It is **desirable** that a Bidder's primary and/or secondary packaging be made with a percentage of post-consumer recycled material and represent a source reduction measure.

3. Labeling

Mandatory

The manufacturer's label **must** state clearly and prominently that dilution with water from the cold tap is recommended and shall state the recommended level of dilution. The manufacturer shall also include detailed instructions for proper use and disposal and for the use of personal protective equipment.

Desirable

It is **desirable** that:

- products have color coded labels in lieu of dyes and be made with a percentage of postconsumer recycled content.
- Manufacturers have product-labeling systems to assist non-English speaking or illiterate personnel.

4. Dispensing Equipment

Desirable

It is **desirable** that Bidders provide an option for dispensing equipment that reduces worker exposure to chemicals and promotes the appropriate use of the cleaners.

5. Non-animal Testing

Desirable

It is **desirable** that Bidders products not be tested on animals. The PMT wants to

Addendum II: Harvard University, Specifications for Green Cleaning Products, 2008

discourage animal testing and will accept the results of past peer-reviewed or standard tests demonstrating compliance with a criterion. In addition, a mixture need not be tested (or retested) if existing information demonstrates that each of the ingredients complies with a criterion. The PMT may also accept non-animal (in-vitro) test results, providing that the test methods are referenced in peer-reviewed literature and the manufacturer provides the reasons for selecting the particular test method. (This section applies to Sections 4.1, 4.3, & 4.7 in the Green Seal Standard).

It is also **desirable** that manufacturers have a non-animal test policy in place, or plan to implement such a test policy in the near future.

6. Additional Information

Desirable

It is **desirable** that Bidders provide information as to whether their products contain ingredients that may be identified as asthma-causing agents (asthmagens). Such ingredients may include, but not be limited to:

Monoethanolamine (CAS 141-43-5)

Tall Oil or Rosin (CAS 8002-26-4)

Chlorhexidine (CAS 55-56-1)

Chloramine T (CAS 127-65-1)

Ammonium Quaternary Disinfectants (May include, but not be limited to the following CAS #s: 8001-54-5, 121—54-0, 122-18-9, 8044-71-1, 123-03-5, 122-19-0)

It is **desirable** that Bidders indicate whether any product being bid is a respiratory irritant or may aggravate existing respiratory conditions.

7. Corporate Environmental Commitment

Desirable

It is **desirable** that Bidders provide information concerning environmental initiatives being conducted or planned in other company operations. Such efforts may include, but not be limited to a Bidder who has:

- instituted a publicly available corporate environmental policy that can be measured by established goals
- implemented an environmental management system such as ISO 14001
- introduced recycled and/or environmentally preferable products into other operational areas, such as using:
 - recycled-content paper that meets the federal standards for all printing and publishing needs (e.g. brochures, advertising, catalogs)
 - attempting to promote renewable resources (e.g. bio-based products)
 - vehicle maintenance products (e.g. re-refined oil, antifreeze, retread tires) and/or alternative fuel vehicles for deliveries
 - Energy Star (energy efficient) office equipment

IX. Product Specific Performance Requirements

The product performance requirements as established by the Green Seal standard GS-37 represents the minimum performance requirements for products submitted under this RFR. Each product *as used* when diluted with water from the cold tap at no more than 50°F, **must** clean common soils and surfaces in its category effectively, as measured by a

Addendum II: Harvard University, Specifications for Green Cleaning Products, 2008

standard test method. Green Seal recommends the following test methods:

General-purpose cleaners. The product **must** remove at least 80% of the particulate soil in the American Society for Testing and Materials (ASTM) D4488-95, A5.

Bathroom cleaners. The product **must** remove at least 75% of the soil in ASTM D5343 as measured by ASTM D5343.

Glass cleaners. The product **must** achieve at least a rating of three in each of the following categories established by the American Chemistry Council (formerly called the Chemical Specialties Manufacturers Association - CSMA) DCC 09: soil removal, smearing, and streaking. <http://www.americanchemistry.com>

Using standard test methods, a manufacturer can also demonstrate that its product performs as well as a nationally recognized product in its category or achieves the removal efficiency defined in this section.