Step 2: Select Green Cleaning Products

Five Steps to Green Cleaning in Schools

GreenCleanSchools.org
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A few years ago, green cleaning could be difficult and confusing. Products were less effective, more expensive and offered spurious claims without industry standards. Today’s marketplace is different. There are plenty of affordable, accessible products and reliable third party certifications. This step is designed to take the guesswork out of evaluating products and help you identify those that meet high standards for effectiveness, health and safety.

What Are Green Cleaning Products?
Green cleaning products typically have one or more of the following characteristics:
- They reduce health risks
- They prevent pollution
- They are sustainable
- They green the product lifecycle

Reducing Health Risks
Many schools are making the connection that healthy students are better learners, and healthy staff work more effectively and miss fewer days. Children are especially vulnerable to chemicals because their behavior (such as sitting on the floor or chewing on objects) increases their exposure. Plus, their bodies are still developing. Janitorial staff who work closely with cleaning chemicals are also highly vulnerable to health risks associated with exposure.

An effective green cleaning program includes products that don’t contain irritants and toxins linked to health risks. Traditional cleaning products have been shown to trigger asthma and other respiratory illnesses, and contribute to long-term health problems such as cancer, reproductive disorders, major organ damage, and permanent eye damage. Data from Washington State show that about 6 percent of janitors experience a job-related injury from chemical exposure to cleaning products every year.

The good news is, many green cleaning products and technologies are being designed to limit or eliminate these health risks once and for all. By making building inhabitants healthier, green cleaning products can also be part of a strategy to boost attendance and productivity at school.

Follow these tips to find products that are better for health:
- Look for products with third party certifications like Green Seal and EcoLogo.
- Avoid all products containing bleach or ammonia.
- Avoid products that list phthalates and heavy metals in their ingredients or packaging.
- Do not purchase products with a label that says “hazardous,” “flammable,” or “poisonous.”
- Steer clear of too many added fragrances, including those that claim to be “natural.”
- When in doubt, call the manufacturer to ask about what they are doing to make their products healthier.

Pollution Prevention
Preventing a pollutant is better than eliminating it after the fact. When purchasing cleaning products, look at reducing the number of toxic chemicals that pollute indoor air and cause respiratory problems such as VOCs, solvents, and aerosols.

Packaging is an important consideration. Purchase concentrates with minimal, recyclable packaging. Packaging is usually 100 percent waste and can add to the cost of your purchase. Here are some tips when selecting packaging:
- Make an effort to purchase concentrates rather than ready-to-use (RTU) formulas.
- Environmentally preferable plastics are those labeled with 1 or 2.
- Recycled plastics labeled with 4 or 5 are only partially recyclable.
- Avoid plastics labeled with 3, 6 and 7.
- Paper packaging should at a minimum meet the U.S. EPA’s Comprehensive Procurement guidelines for boxes and cartons.
- Lightweight, flexible packaging (e.g., pouches or bags) uses significantly fewer materials than rigid plastics.
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Green Seal, UL Environment and DfE products all require sustainable packaging measures. These elements include packaging that is either recyclable or refillable and utilizes renewable energy during the production process. Also, toxic chemicals such as BPAs, heavy metals or phthalates must not be intentionally introduced into packaging production.

**Sustainability**

Natural resources are being used faster than they can be replaced. We are cutting down forests to make toilet paper faster than trees can be re-grown. We use petroleum (a non-renewable resource) to make trash can liners with no recycled content.

Sustainability means we do not hurt future generations’ ability to use and enjoy the earth’s natural resources.

Buying concentrated formulas with minimal packaging instead of ready-to-use (RTU) formulas can reduce the environmental impact of packaging materials, transportation, and disposal. In addition, concentrates can save money. The decision to use concentrates versus RTUs needs to be based on how your school will use the specific product. In some cases (particularly when a small school is purchasing a low-volume, infrequently used product), it may make more economic sense and produce less waste to use an RTU product.

Using portion control with concentrated products avoids waste, material damage and exposure to the concentrated chemical. Your choice of dispensing equipment (e.g., pre-measured packets, sachets, etc.) should be guided by the specific situation in your school. Every manufacturer of green cleaning products offers at least one type of dispensing option. It is very important for products to be used as directed by the manufacturer.

**Greening the Product Lifecycle**

The lifecycle of a product refers to a product’s entire journey, from the raw materials that create it all the way through its disposal. We can choose products based on health and environmental impacts throughout the product’s lifecycle.

**Raw Materials**

Drilling for oil used for most chemicals and plastics and logging trees to create janitorial paper are just two of the most common—and most devastating—environmental impacts that come from production of cleaning supplies. Even “natural” products made from agricultural sources such as oranges, corn and soybeans may have harmful impacts, depending on the farming operations used to grow them.

**Transportation**

Transportation affects the environment at several points in the product’s lifecycle. It may be the oil tanker bringing crude oil to the refinery from the drilling fields or shipping a truckload of chemicals from the manufacturer to the distributor to the end-user. Consider the differences between shipping concentrates versus shipping all the added water and packaging materials in ready-to-use (RTU) products.

**Manufacturing**

Environmental impact varies by type of product produced or raw material used. For example, using chlorine bleach (sodium hypochlorite) in the production of paper releases one of the most hazardous man-made compounds in existence: dioxin. Storing dangerous products can lead to spills, deadly chemical combinations (for example, ammonia combined with chlorine bleach creates a deadly gas) or potential flammability.

**Usage**

Dangerous chemicals can cause injuries during use, e.g., eye and skin burns, ingestion, or inhalation, among others. High volatile organic compounds (VOCs) from fragrances, solvents and other conventional cleaning products may cause Indoor Air Quality (IAQ) problems, resulting in respiratory irritation. Or there may be products that can be absorbed through the skin, causing harm over long periods of time.

**Disposal**

Some products can harm the environment and human health when they are disposed. A common example is zinc, a metal used in floor finishes that acts as a neurotoxin, harming the
development of the brain and nervous system. Nonylphenol ethoxylates, surfactants found in many detergents, are thought to be endocrine disruptors that can cause permanent mental, learning, and behavioral disabilities. Heavy metals often end up in the water supply, harming aquatic life.

Seek Out Green Third Party Certifications

Third-party organizations, such as Green Seal, EcoLogo and the EPA's Design for the Environment program have created third party certifications, also known as ecolabels or standards, for the majority of green cleaning chemicals used in schools. Recognized third party certifications can help purchasers like you navigate the marketplace and weed out products that simply claim to be green from those products that actually are green.

Here are commonly certified cleaning products:
- General purpose and hard surface cleaners
- Glass cleaners
- Hard floor cleaners
- Carpet cleaners
- Hand soaps
- Specialty cleaners (such as drain openers and stainless steel cleaners)

Product formulations and third party certifications are constantly updated. It’s important to use the most updated third party certifications and product lists. Always check the standard’s website to find the most up-to-date product list, or check with the manufacturer of a certain product to see if its certification has been updated.

When Certifications Aren’t Available

For a limited number of product categories, such as disinfectants, degreasers and drain cleaners, there are no third party certifications or limited products available. The good news is that certifications are constantly evolving. For example, water based technologies are beginning to be certified, and new certifications for specialty product categories are gaining in the marketplace. Keep checking back frequently or contact the manufacturer or third party to learn more about specific products and the certification process.

Still, for some products that are not able to be certified, you’ll need to consider additional environmental and health factors. Make sure you look at multiple product attributes before making a “green” claim for a particular product. You can always make a greener choice by purchasing concentrated formulas with minimal packaging instead of ready-to-use (RTU) products. It is also very important for products to be used as directed by the manufacturer. Improper usage can harm staff and the environment.

There may also be other programs to consult when you can’t find certifications for cleaning products. Scientific Certification Systems is a program that scientifically verifies claims such as biodegradable or recycled content.

You might also ask your vendor for products that meet the California VOC standard. To minimize air pollution, California set limits on the concentration of Volatile Organic Compounds (VOCs) in numerous consumer products. The state now evaluates deodorizers, furniture and metal polishes and other “high- VOC” cleaning products. The product label will state that it is registered for sale in the State of California.

Another good rule of thumb is to look for products without fragrances. Fragrances, even those that claim to be “all natural,” are often masking harmful agents. They are not functional when it comes to cleaning, but instead they can come with health impacts.

Finally, MSDS sheets are a wealth of information to help you determine product hazards and compare health risks. When looking at a MSDS, look for products that have the lowest health and hazard risks.

Cost Comparison

Many schools have found their costs for green cleaning products to be less than or equal to conventional cleaning products. The key to this cost benefit lies in volume. Instead of using several specialized cleaning products containing harmful chemicals, schools can use
just a few green cleaning products that have multiple uses, purchased in larger volumes for cost savings.

**“Best Value” Model**

Rather than just looking for the cheapest price, school districts should consider adopting a “best value” purchasing model. This not only looks at the cost, but also the performance, health and environmental attributes of a product. Perhaps more importantly, “best value” purchasing model evaluates the vendor’s ability to train custodial personnel on critical issues such as:

- Proper chemical mixing
- Proper techniques to maintain hard floors and carpets
- Strategies to reduce exposures to vulnerable and sensitive occupants
- Efficient methods to clean restrooms and classrooms
- Vendor’s reputation for timely delivery and other support functions

**Consider Labor Costs**

Purchasing based solely on the lowest product cost can create significant difficulties. Unlike most school products, such as furniture, art supplies or writing paper, cleaning supply costs are labor dependent. In fact, labor represents around 80-90 percent of a cleaning budget, while cleaning products represent less than 10 percent. Without the proper training, small savings on the product can result in unintentionally large labor costs. That’s why it’s so important to consider each investment from an end user’s perspective and invest in training. This way, you’ll get the best value from your green cleaning purchases.

**Product Categories for Discussion**

Some school districts and local health codes have very specific rules regarding the purchase of products from certain cleaning product categories. Here we offer our own guidelines on even the trickiest cleaning product categories, with tips on finding the greenest solutions that also meet your regulations.

**Aerosols**

Most school cleaning procedures do not require aerosols. CFC propellants have been banned for some time so most aerosols now use propane or butane (cigarette lighter fluid) as the propellant. These can cause inhalation issues and may be extremely flammable. Aerosol containers are also difficult to recycle and impossible to reuse. Look for dispensers with a simple trigger sprayer or a “flip-top” dispenser, such as typical toilet bowl cleaners or cream furniture polish. If aerosols have to be used for ergonomic reasons or other specific needs, look for products that are EPA Design for the Environment recognized.

**Floor Finishes Containing Metals**

We agree that floors need to be clean, especially when children sit on them. But how shiny does the floor really need to be? A satin finish versus a high gloss will reduce the need to maintain, buff, burnish and ultimately strip and recoat a floor. For floor finish, the issue of durability is also incredibly important. A finish that stands the test of time will reduce the frequency of stripping and recoating. That should reduce environmental impacts and health risks to custodians. It will also save the school money.

Zinc is the most common metal used for “cross-linking” polymers in traditional floor finishes. This heavy metal enters the environment when floors are stripped and the waste is put down the drain. Zinc can cause neurological damage and strain municipal waste water treatment systems. Look for non-zinc finishes instead. The strippers used to remove finishes with heavy metals are typically high pH (13 or 14), while those used to remove zinc-free finishes typically have much lower pH levels. Lower pH levels that approach neutrality (pH=7) reduce the potential for burns to skin and eyes.

**Chlorinated and Ammoniated Cleaners**

These products are respiratory irritants, which means they irritate people’s lungs and may trigger asthma attacks. Chlorine-based cleaners are corrosive. They burn eyes and skin and permanently damage carpets and clothing. Mixed together, these two chemicals create a deadly gas. Hydrogen peroxide-based products
can be excellent alternatives to chlorine bleaches and even some sanitizers and disinfectants. However, some local public health codes require their use for disinfecting. In these cases, follow public health codes and make sure the chemicals are being used sparingly in well-ventilated spaces and with proper protective gear.

Disinfectants
The EPA does not currently allow environmental claims to be used when describing disinfectants and sanitizers because these chemicals are designed to kill living organisms. However, the EPA Design for the Environment program is piloting a program that is slowly allowing healthier and greener disinfectants to enter the marketplace. And Green Seal is starting to certify disinfectants. While what companies are allowed to say about their “certified disinfectants” is a bit murky at this time, one can seek out disinfectants that have gone through evaluation for DfE, EcoLogo and Green Seal now.

Germ control in schools is important, but all microorganisms are not “bad.” Good physical cleaning of surfaces is often enough. Using harsh chemicals such as chlorine, phenols and quaternary ammonium compounds (quats) irritates eyes, skin and respiratory systems. It damages finishes, carpets and clothing and even produces poisonous gases. Overusing disinfectants may produce resistant bacteria that further harm health and the environment. Read more about infection control in schools at: http://greencleanschools.org/resources/featured-resources.

Furniture Polish, Dusting Compounds, and Metal Polish
These products commonly contain a wide variety of ingredients that harm human health and the environment. Furniture polishes, dusting compounds and metal polishes are frequently derived from petroleum, including solvents, ammonia and benzene, a proven carcinogen. Petroleum is an increasingly scarce, non-renewable resource and is not a necessary component for these, or other, custodial products. Petrochemical-based furniture, dusting compounds and metal polishes cause more complaints from building occupants than from any other products.

These products can be replaced with plant-based, low-odor, and naturally derived alternatives, including cleaning sponges that physically remove dirt or bio-based alternatives for polishing. In many cases, schools find that eliminating polishes and simply using microfiber for cleaning actually keeps stainless steel cleaner longer because without the polish, it attracts and retains less dirt. For dusting, microfiber products are a superior green choice. All of these alternatives are equal to or more effective than traditional petrochemical products and are safer for users, the environment, and students.

Drain Openers and Grease Trap Products
These products are frequently used to open clogged drains and grease traps in restrooms and kitchens. Drain openers are typically highly acidic or highly alkaline products. They are very corrosive and will burn eyes and skin, resulting in serious and irreversible damage. Grease trap products are frequently solvents that can have serious environmental impacts. Alternatives are now available for these applications based on “biological” products using non-pathogenic (not harmful) microbes that are less harmful to human health and the environment.

Gum Removers
Gum removers used to be formulated with chlorinated solvents, such as freon, before those solvents were banned because of their environmental impact. Dry ice and carbon dioxide are preferable replacements. Degreasers can also be used in some situations. Additional recommendations for gum removers include:
- Choose those that have no or low VOCs over alternatives with higher levels
- Consider detergent-based products compared to those containing solvents
- Choose products that have a high flashpoint compared to a low flashpoint, since high flashpoint products are less likely to combust
- Choose products with a neutral pH (closer to 7) as compared to those with extreme pH (closer to 1 or 14)
More preferable ingredients include dry ice and carbon dioxide. Less preferable ingredients include freon, dichloro-difluoromethane and trichloro-fluoromethane.

**Lime & Scale**
Lime and scale removers contain acids to remove mineral deposits from sinks, bowls and urinals. Choose those with a more neutral pH over those with extreme pH (closer to 1). Environmentally preferable lime and scale removers may fall more in the range of pH 4 as compared to traditional products that may have a pH below 1.

More preferable ingredients include citric or acetic acid. Avoid ingredients like hydrochloric or phosphoric acid.

**Grout Cleaners**
Environmentally preferable grout cleaners may be enzyme- or peroxide-based. Avoid bleach when possible.