Green Cleaning
Products and Practices for a Safer Indoor Environment

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Overview

- What are the biggest health risks from conventional cleaning products?
- What costs/benefits “green” cleaning?
- What is the status of green cleaning certifications such as GS-37?
- What are the results of various pilot tests of green cleaning in schools?
- What resources are available to help schools switch to green cleaning?
Why Avoid Toxic Cleaning Products?

- Protect workers’ health
- Improve indoor air quality (IAQ)
  - Reduce exposure to building occupants (such as students)
- Reduce environmental impacts
  - Smog, ozone depletion, global warming
  - Toxicity to fish, wildlife
Health Hazards of Cleaning Chemicals

- ~5 billion pounds used annually
- 6 out of every 100 janitors injured each year
- 20% of injuries are severe chemical burns to eyes/skin
Children More Sensitive to Chemicals

- Less body weight
- Intake higher
  - Breathe more air
  - Drink more water
  - Ingest more dirt
  - Have higher metabolism
- Less developed defenses
  - Immune system
  - Organs
High-Hazard Cleaning Products

- Floor strippers (asthma, burns)
- Disinfectants (asthma, organ poison)
- Degreasers/Solvents (cancer, nerve damage)
- Acid toilet cleaner (burns)
- Metal polish (cancer, flammable)
- Graffiti/Paint Removers (cancer, reproductive damage)
- Most products in aerosol containers
Disinfectants

All disinfectants are toxic (EPA-registered pesticides)

Disinfectants cannot be certified green

Disinfectants should be…

- Used only when needed
- Applied only after surface is cleaned
- Properly diluted
- Left on long enough to be effective

Consider peroxide disinfectants
**Anti-bacterial Soap**

American Medical Association position:
- No more effective than soap & water
- May increase germs’ resistance to antibiotics

Strips hands of oil and “friendly” bacteria

Found in:
- Hand soaps
- Dishwashing liquids and sponges
Fragrances

- Many people are allergic to scents
- Fragrances often contain hidden toxic ingredients.
- Most fragrance ingredients “proprietary”
What is “Green” Cleaning?

Products and practices that protect human health and environment

- Choosing safer products
- Reducing quantity of chemicals
- Minimizing exposure
Certified Green Cleaners

- Low toxicity
- No cancer-causing ingredients
- Not corrosive to eyes or skin or skin sensitizer
- Won’t pollute air or deplete ozone layer
- Won’t kill fish
- Will biodegrade
- Low phosphorous
- Package recyclable
- Available as concentrate
- Limits on fragrances used
- Certain ingredients prohibited
- Performance tested
- Vendor training available
Green-certified Cleaning Products

- General/Multi/All Purpose Cleaner
- Restroom Cleaners
- Floor Cleaner/Finish/Stripper
- Toilet Bowl Cleaner/Descaler
- Tub & Tile/Grout Cleaner
- Glass Cleaner
- Degreaser
- Carpet Cleaner
- Hand Soap

See www.greenseal.org/certproducts.htm
Green Seal-certified Products Widely Available

Made by many major manufacturers

- 3M
- Betco
- Butchers
- Johnson Diversey
- Spartan

Offered by most janitorial suppliers
Available on two California state contracts
New Environmental & Health Criteria in GS-37

- Prohibition on asthmagens
- Chronic inhalation toxicity addressed
- pH limit imposed (>2 and <11.5)
- All phthalates prohibited (formerly only Dibutyl phthalate)
- 2-Butoxyethanol prohibited (but not any other Glycol ethers)
- Better packaging/labeling/training requirements
What We Didn’t Get in GS-37 Upgrade

- Standard does not:
  - Guarantee CONCENTRATE is safe (criteria based on diluted product)
  - Completely harmonize with Canadian Ecologo
  - Prohibit all ingredients of concern (respiratory irritants, ammonia compounds, glycol ethers)
  - Fully address concerns with fragrances
- Green Seal won’t post current MSDS
“Green Washing”

- Discourage specification of industry self-certified “green” products
  - Industry standards are usually weaker than those set by independent third party organizations.
- Avoid specification of products with single health- or environmental attribute (e.g., biodegradable)
Are MSDSs Adequate?

- Don’t list all ingredients
- Some ingredients “proprietary”
- Some lack % of ingredients or pH
- Very little information on chronic health effects or environmental impacts
Ecologo Standard (Canada)

- Covers many products sold in US
- Covers a wider range of product categories, including dish detergents, vehicle and boat cleaners, bio-based parts cleaners, and disinfectants
- Offers “cleaning products with low impact for environmental illness and endocrine disruption
- Prohibits several additional ingredients (such as ammonia and EDTA)
- Does not yet address asthmagens
- Slated to be updated soon
Design for the Environment (DfE)

- Technical assistance program run by US EPA
- Offers “partnership projects”
- Not a transparent 3rd party certification program
- Several states (WA, OR, VT) reference DfE in their specs
- Safer Detergent Stewardship Initiative (SDSI) recognizes products without APEs
Benefits of Green Cleaners

Minneapolis, MN conducted 3-year “green” cleaning pilot test and reported:

- Cost savings moving to metered dilution system away from hand mixing
- Fewer sick days for custodial staff
- Reduced waste and other liabilities
- Improved indoor air quality (IAQ)
Green Cleaners Can Save $

Opportunities to cut costs by:

◆ Reducing variety of products used
◆ Competitively bidding green cleaners
◆ Reducing amount of chemicals used via best practices
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<th>Product</th>
<th>Size</th>
<th>Cost</th>
<th>Cost/Gal</th>
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<tr>
<td>Conventional (NABC)</td>
<td>55 gal drum</td>
<td>~$380</td>
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<tr>
<td>Conventional (NABC)</td>
<td>55 1-gallon bottles</td>
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<td>Green Alpha HP (1:64)</td>
<td>2 1/5 1.5L bottles</td>
<td>~$54 (Waxie)</td>
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Microfiber Mops

- Cost-effective (life-cycle basis)
- Reduce chemical use (~1/2)
- Minimize water use (up to 95%)
- Prevent injuries (chemical exposure, back strain, accidents)
- Effective (reduce dirt, avoid cross-contamination)

www.sustainablehospitals.org/PDF/tenreasonsmop.pdf
www.epa.gov/region09/waste/p2/projects/hospital/mops.pdf
Products Tested in Pilot Tests

Green Seal-certified cleaners
Safer disinfectants
Dilution equipment
Microfiber mops and cloths
Floor polish/stripper
Benefits Documented in Pilot Tests

Cost savings
Health & safety improvements
Equivalent or better performance
Time savings
Smaller storage footprint
Environmental benefits
Green Cleaning Pilot Test
Step 1: Baseline Analysis

A. Met with custodial supervisors and staff

B. Documented their cleaning procedures

C. Reviewed their product safety sheets (MSDSs)
Green Cleaning Pilot Test
Step 2: Identified/Tested Green Products

A. Identified/interviewed distributors of janitorial products

B. Picked most responsive vendors

C. Schools listened to green cleaning presentations by vendors and chose products to be tested

D. Compared green cleaning products to conventional products
Health & Safety Improvements

- Workers reported “green” floor strippers and disinfectants caused fewer breathing problems
- Microfiber mops easier to push around than cotton mops
- Green cleaners in no-spill containers
Green Cleaning Products: Performed as Well or Better

Peroxide cleaner/disinfectant
- effective at removing dirt
- whitened grout, cleaned carpets/mirrors
- left no residue to rinse
- eliminated restroom odors and “blue” staining

Floor stripper removed old wax with less rinsing needed

Microfiber mops more effective, especially around edges
Green Cleaning Pilot Test Challenges

One dilution system leaked, over-concentrated
  - Equipment improperly installed
Microfiber mops need scrubbers for some applications, buckets, ringers
Cleaning of microfiber mops challenging
  - Mini-washers available
Hands dried out
  - Gloves STILL needed
NY State Green Cleaning in Schools Law (2005)

Requires all elementary and secondary schools to identify and procure environmentally sensitive cleaning and maintenance products.

Directs Office of General Services to establish/disseminate guidelines, specifications and list/vendors of qualifying products.

www.ogs.state.ny.us/bldgadmin/environmental/s5435.pdf
IL Green Cleaning Law (2006)

- Requires all elementary and secondary schools in Illinois to purchase “green” cleaners

- Successful pilot test in Chicago public schools found “green” cleaners comparable in cost and equally effective

See [http://healthyschoolscampaign.org](http://healthyschoolscampaign.org)
Green Cleaning Resources

The Quick & Easy Guide to GREEN CLEANING IN SCHOOLS

Cleaning for Health
Products and Practices for a Safer Indoor Environment

GREEN CLEANING TOOLKIT
FOR SCHOOLS
Download and start today!
[zip archive]
Cleaning for Healthy Schools Toolkit

What is Cleaning for Healthy Schools?
Keeping schools clean, child and worker health, asthma, chemical hazards, green cleaning

Chemicals: Your Health and Right to Know
Workers, parents, OSHA, MSDS, labels, right to know

Getting Started: The School Building Walk-Through
Building walk-through, special needs, advanced equipment

What Schools Need to Know
Keep dirt out, child & worker health, chemical hazards, asthma, 3rd-party certified products, advanced equipment
Questions?