

Green Cleaning Products & Practices to Improve Indoor Air Quality



Alicia Culver
Green Purchasing Institute
510-547-5475
Info@GreenPurchasing.org

City of Los Angeles * July 22, 2008



What We Will Talk About

- What is “green” cleaning?
- What are the biggest risks from conventional cleaning products?
- How can facilities find safer cleaning products?
- What are the results of various green cleaning in schools pilot tests?
- What can the City/County/school district do to promote green cleaning?



What is “Green” Cleaning?

Products and practices that protect human health and environment

- ◆ Choosing safer products
- ◆ Reducing quantity of chemicals
- ◆ Minimizing exposure





Why Avoid Toxic Cleaning Products?

- **Protect workers' health**
- **Improve indoor air quality (IAQ)**
 - ◆ Children = most vulnerable
- **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





Replace High Hazard 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)





Minimize Need for Harsh Cleaners

- Assess: Where does dirt come from?
- Reduce Dirt: HEPA vacuums
- Prevent Mold and Mildew: Fix leaks, eliminate moisture, ventilate
- Improve Interior Design: Door mats, no wax floors





Avoid Aerosols

- Fine mist can penetrate lungs
- Propellants hazardous/flammable
- Cans may explode
- Expensive



Choose Fragrance-free

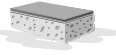


- Many people are allergic to scents
- Switch to fragrance-free products
- Educate building occupants



Use Disinfectants Properly

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



Avoid 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



Choose 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 Seal-certified Cleaning Product Types

- 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

◆ **GRAINGER**

Recently added to California/WSCA contracts



Dilute Properly



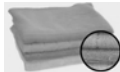
- **Use automatic dilution equipment**
 - ◆ Prevents exposure
 - ◆ Saves money
- **Follow instructions**
 - ◆ Twice as much is NOT twice as good



Try Microfiber



- **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)**



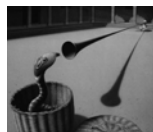
www.sustainablehospitals.org/PDF/tenreasonsmop.pdf
www.epa.gov/region09/waste/p2/projects/hospital/mops.pdf



Reduce Exposure



- **Provide protective equipment**
 - ◆ Gloves
 - ◆ Goggles
 - ◆ Respirator
- **Ventilate**
- **Clean when other occupants away**



Conduct Training



New products may require different cleaning methods

Training is essential to ensure proper transition to green cleaning products and practices



Green Cleaning Pilot Test Step 1: Baseline Analysis




- 1. Met with custodial supervisors and staff**
- 2. Documented their cleaning procedures**
- 3. Reviewed their product safety sheets (MSDSs)**



Green Cleaning Pilot Test Step 2: Identified/Tested Green Products


- 1. Identified/interviewed distributors of janitorial products**
- 2. Picked most responsive vendors**
- 3. Schools listened to green cleaning presentations by vendors and chose products to be tested**
- 4. Compared green cleaning products to conventional products**





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**



Cost Savings: Disinfectants

Product	Size	Cost	Cost/Gal
Conventional (NABC)	55 gal drum	~\$380	\$6.90
Conventional (NABC)	55 1-gallon bottles	~\$660	\$12.00
Green Alpha HP (1:64)	2 1/5 1.5L bottles	~\$54 (Waxie)	\$0.96



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

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**



Green Cleaning Resources



Questions?