

## Cleaning for Health: Products and Practices for a Safer Indoor Environment

Alicia Culver, Sr. Research Associate  
212-361-2400, ext. 234  
[culver@informinc.org](mailto:culver@informinc.org)

EPA "Greening the Government" Conference  
June 5, 2003

**INFORM**

## About INFORM

Non-profit research organization founded  
in 1974

Key program areas:

- Chemical hazards prevention



- Solid waste reduction



- Sustainable transportation



**INFORM**

## INFORM's Environmental Purchasing Program at a Glance

Work with public institutions to reduce  
the purchase of products that contain  
highly persistent and bioaccumulative  
toxic chemicals (PBTs).

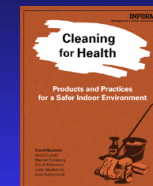


Less-toxic Products

**INFORM**

## Cleaning for Health

- Summarizes hazards of janitorial cleaning chemicals
- Recommends "model" specs
- Lists "greener" cleaners that meet performance specs
- Suggests practices to reduce exposure



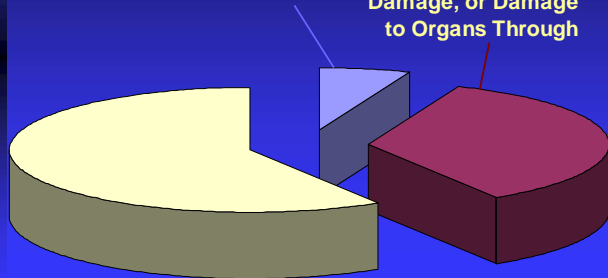
[www.informinc.org/cleanforhealth.php](http://www.informinc.org/cleanforhealth.php)

**INFORM**

## Hazards of Cleaners

6% Cause  
Cancer, Ozone  
Depletion, or  
Global

35% Contain  
Ingredients that can  
Cause Blindness,  
Severe Skin  
Damage, or Damage  
to Organs Through



INFORM

## Health Hazards of Janitorial Cleaning Chemicals

- 6 out of every 100 janitors are injured on the job annually
- 20 percent of these injuries are severe chemical burns to the eyes and skin
- Some disinfectants (e.g., “quats”) can cause occupational asthma



INFORM

## Para-dichlorobenzene Restroom Deodorizers



### Para-dichlorobenzene:

- chronic exposure may cause harm
- inhalation may result in headache, swollen eyes, stuffy head, anorexia (loss of appetite), nausea, vomiting, and throat and eye irritation
- is a probable human carcinogen
- generates PBTs in manufacture

INFORM

## Building Maintenance Example: Urinal Blocks



- INFORM helped Erie County (New York) identify urinal blocks that do not contain para-dichlorobenzene.
- County tested two alternatives in a high-traffic office building, a library, and a park.
- Results led County to revise its janitorial contract to offer only “non-para” products.

Toxicity Reduction: 2,000 lbs of paradichlorobenzene annually

INFORM

## “Contaminant Mercury” in Cleaning Supplies

- Chlorine-bleach is sometimes made in a mercury process
- Mercury in cleaning products can be flushed into the sewer system.
- Mercury concentrates in sewage sludge, surface water, and fish.



INEFORM

## Key Things to Avoid

- Flashpoint below 200°F
- Toxic chemicals (on EPA’s TRI list)
- High volatile organic compound (VOC) level (legal limit for general purpose cleaners 10%)
- Aerosol cans/trigger sprays
- pH above 10 or below 6
- Skin, eye and respiratory irritants



INEFORM

## Avoid Asthma-Triggering Ingredients

- Asthmagens are not identified on MSDS
- Asthmagens listed at AOEC website:  
<http://www.aoec.org/aoeccode.htm>

Massachusetts model bid specification:  
<ftp://ftp.comm-pass.com/Data/0136940003.pdf>

The first to require vendors to disclose “asthmagens” in cleaning products.

INEFORM

## Avoid Fragrances

- Many people are sensitive to fragrances
- When switching to fragrance-free products, educate users and occupants.
- Many people think it is not clean if it doesn’t smell “clean.”



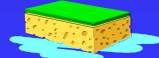
INEFORM

## Minimize Disinfectant Use

Since all disinfectants are toxic:

- Disinfect only where needed
- Clean **BEFORE** disinfecting
- Use gloves and goggles, if indicated

Leave disinfectant in place for specified time



INEFORM

## Reduce Exposure

- Avoid aerosols or spray bottles
- Provide protective equipment for workers:
  - ◆ Gloves
  - ◆ Goggles
  - ◆ Aprons
- Ventilate enclosed spaces
- Clean when other occupants away



INEFORM



## Avoid the Need for Harsh Cleaners

- **Assess:** Where does dirt come from?
- **Reduce Foot Traffic:** place mats at doors and reminders to occupants
- **Prevent Mold and Mildew:** Repair leaks or other source of moisture, provide ventilation, or remove carpet
- **Improve interior design:** Specify flooring that does not need floor waxes and strippers

INEFORM

## Adjust Cleaning Methods

- New products may require a different cleaning method.
- Non-acid bowl cleaners may need to sit in bowl for 10 minutes.
- Schedule checks instead of automatic cleaning if use of surface varies



INEFORM

## Use Proper Equipment

- Proper equipment can reduce amount, strength or toxicity of product needed:
  - ◆ Reusable cloth rags
  - ◆ Adequate mop heads
- Non-traditional equipment such as fiber-reactive cloths do not require chemicals.



INFORM

## Use Portion Control Equipment

- Portion control equipment can range from measuring cup to electronic dispensing system
- Train custodians to use only amount of product needed
- Start with recommended dilution; then see if more dilute solution will do the job



INFORM



## Case Study: Hackensack University Medical Center

### Greening the Cleaning Program

- Inventoried all cleaning products
- Evaluated toxicity & effectiveness
- Surveyed non-hazardous substitutes
- Replaced 18/22 cleaning products
  - ◆ No strong acids in all-purpose cleaners
  - ◆ No ammonia in glass cleaners
- Set up mixing stations
- Established hospital-wide instruction

<http://www.dienviro.com/index.asp>

INFORM

## Lessons Learned

### “Greener cleaners”:

- Improve indoor air quality
- Protect health of workers and building occupants
- Are widely available
- Are competitively priced
- Meet performance specifications



INFORM



## Get User Input

- Most facilities that successfully switch to less-toxic cleaners ask custodians to participate in decisions about which products to try.
- Start by replacing products that already cause custodians health problems or that are not cleaning effectively.

INFORM

## Get the Information You Need

- Request and read “material safety data sheet” (MSDS)
- Require vendors to disclose ingredients of concern
- Ask questions
- Choose vendors that provide training on how to properly use their products



INFORM

## Become a Cleaning for Health Project Partner

**INFORM** helps Partners to:

- Evaluate existing cleaning products
- Research availability/cost/performance of alternatives
- Prepare specifications
- Identify local vendors
- Address implementation issues



INFORM

## Janitorial Products Pollution Prevention Project (JP4)

<http://www.westp2net.org/Janitorial/jp4.htm>

### Safe & Effective Toilet Cleaning



Many toilet bowl cleaners contain acids and other chemicals that are harmful. Use the mildest product you can find, and always wear gloves and goggles to protect yourself.

Most non-acid toilet cleaners are relatively safe to use, and have only a small impact on the environment. Disinfectants require a bit more care, but are still fairly safe. Acid cleaners are the most dangerous of all.

**Use a mild cleaner for daily toilet polishing.**

**Unless the toilets are already in good shape, clean them first and then use a separate disinfectant.**

**Use acid cleaners only when you have really stubborn stains to remove.**

**Acid cleaners are very dangerous - always protect yourself by wearing gloves and goggles.**

**Regular Toilet Cleaning** - Use a strong non-acid cleaning product for your daily toilet maintenance. Also use a disinfectant product that contains Alkyl Ammonium Chloride to kill germs. Some suppliers combine the cleaner and disinfectant into one product. You can use a combined cleaner-disinfectant only if the toilet fixtures are not too dirty to start with.

Otherwise you should clean the toilets first, and then use a separate disinfectant. Leave the disinfectant in place for 10 minutes to get good results.

**Stain Removal** - Sometimes lime stains, rust, or other stubborn deposits will form in the toilet bowl. Your regular daily cleaner might not remove these materials.

You have two choices: use a powdered cleaner and scrub pad to scour the