

Less Toxic Cleaners for Home and School

A Factsheet from the Neighborhood Network

Maintaining a clean home or school is an important way to minimize possible health problems caused by germs and molds. However, you may not realize that some of the common household cleaners sold at supermarkets and institutional cleaners may also contribute to certain health problems. Many common household products contain alcohols, ammonia, bleach, and lye. These substances can cause nausea, inflammation and burning of the eyes, nose, throat, and respiratory system, and are linked with neurological, liver and kidney damage, asthma, and even cancer. According to the Healthy Schools Network, more children have asthma and allergies than ever before, so reducing respiratory irritants is important. Some cleaners may also have environmental impacts when washed down the drain.

Some problems with cleaners to be aware of:

- Some disinfectants are actually pesticides—if you think about it, pesticides kill pests, and disinfectants also kill pests—pathogenic microbes. In fact you will even see an EPA registration number on some, and there is an Antimicrobial Division of EPA under the Office of Pesticide Programs that regulates this area.
- It is very dangerous to mix ammonia with bleach. This combination produces potentially deadly chloramine gas. Chlorine bleach, though a very effective disinfectant that can even kill HIV, is caustic and can irritate skin and lungs. When mixed with other compounds in wastewater, chlorine can combine to form chlorinated organic compounds, which can be toxic and even carcinogenic.
- Many cleaners contain petroleum distillates which may irritate eyes, skin, and lungs. These may cause dermatitis, and even damage to the central nervous system. Petroleum distillates may contain benzene, a carcinogen.
- Phosphates: what's all the fuss about phosphates in detergents? Phosphates are fertilizers, so phosphates that end up in waterways after being rinsed down the drain can over-nutrient rivers, streams and bays, causing excessive algae growth that chokes out other life including fish and shellfish. On Long Island, where we are surrounded by water, this is a serious concern.
- Phenol compounds are mostly used in industrial cleaners and are sometimes purchased by schools. They are effective against many bacteria, fungi, and viruses but according to the EPA are not suggested for food surfaces. The Healthy Schools Network says that these compounds can cause fatal poisoning if absorbed through the skin, or at lower levels can cause skin irritations such as ulcerations and rashes. Exposure to vapors commonly causes light sensitivity and sinus congestion. Ingestion even at low levels is very hazardous. The Green Seal program, which rates products for environmental preferability, says phenol compounds are suspected of causing cancer in humans. (Note that the term "environmentally preferable" is used only for products that are tested by a state agency or an independent environmental testing organization such as Green Seal. "Environmentally safe" and "environmentally friendly" are undefined marketing terms.)
- Why is biodegradable important? Biodegradable means that a substance can be broken down by microbial activity; the catch is that some things break down faster than others. Look for specific time ranges on labels. Generally, surfactants made of vegetable fatty acids break down faster than petroleum fatty acids. According to



Green Seal, surfactants (such as soaps) can increase penetration of harmful chemicals into the tissues of plants and animals.

- Avoid cleaners with a pH that is not near neutral, since strongly acidic or alkaline liquids can burn your skin.
- VOCs (Volatile organic compounds) Cleaning products give off VOCs, which when airborne, react with other compounds in the air and form ground level ozone and smog which aggravates respiratory ailments. According to the Washington Toxics Coalition, some VOCs that frequently pollute indoor air, such as toluene, styrene, xylenes, and trichloroethylene can be emitted from cleaners, but also products such as pesticides, paints, paint thinners, aerosol products, petroleum distillates, dry-cleaned clothing, laser printers, photocopiers, adhesives, air fresheners, and perfumes. High levels of toluene, can put pregnant woman at risk of having babies with neurological problems, retarded growth, and developmental problems. Even at low concentrations, however, toluene exposure can cause headaches, dizziness, drowsiness, nausea, and fatigue in children and adults.

Warning Labels

The three most dangerous cleaning products in the average home are probably drain cleaners, oven cleaners, and acid-based toilet bowl cleaners. Most of them are labeled "DANGER. Corrosive." Corrosive products can severely burn skin or eyes. If accidentally swallowed, a corrosive product could cause internal burns. Many corrosive products also can react violently if mixed with other products. Some rust removers are also corrosive. There is no reason to have corrosive products in the home. Safer alternatives exist for all of them.

The Janitorial Products Pollution Prevention Project recommends, "Avoid products that have the words 'Danger', 'Poison', or 'Warning'. When you must use a strong product to get the job done, protect yourself by wearing gloves & goggles, and be sure that your work area has plenty of fresh air."

An important point is to follow dilution directions; the concept of "more is better" does not necessarily apply when dealing with concentrated cleaners.

Alternatives to Toxic Cleaners

Keeping dirt out of the building, and cleaning carefully is one preventive way to reduce the need for disinfectants. Hot soapy water usually is sufficient. One choice that can be used to clean many surfaces and has a pleasant smell is citrus-based cleaners. They are often sold concentrated; be sure to dilute properly to avoid eye irritation.

Several home remedies that you may find useful:



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- White vinegar can be used to clean windows and glass, as well as linoleum floors (never mix vinegar with bleach).
- Baking soda can be used as an all-purpose cleaner, especially for scouring sinks, tubs, and ovens. It can also be used as a deodorizer for garbage cans and carpets, and for cleaning toilets when used together with Murphy's Oil Soap. To unclog drains, pour half a cup of baking soda down the drain, followed by a cup of vinegar; let it fizz and then follow this with a rinse of boiling water with salt.
- Linseed oil and olive oil mixed with a little vinegar can be used to polish wood furniture.
- Alcohols, such as isopropyl alcohol, are effective disinfectants if used at a concentration of 70% according to the EPA, but they are also flammable, and can irritate eyes.
- Lemon juice and hydrogen peroxide can be used to whiten clothes. In fact you'll notice that some of the "bleach alternatives" sold in stores include peroxide as an ingredient.

If you're like many people, your busy lifestyle may not allow time for homemade remedies. Store-bought cleaners are emerging that use plant-based derivatives, and other safe ingredients. This Directory provides contact information for several alternative cleaning product manufacturers (see ads in this section) which follow a natural approach.

Besides any of the cleaners featured in ads in this Directory, some other household cleaning product companies include:

- Ecover (www.ecover.com)
- Seventh Generation (www.seventhgeneration.com)
- Citra-Solv (www.shadowlake.com)
- Earthrite
- Sun & Earth (www.sunandearth.com)
- Magick Botanicals (www.magickbotanicals.com)
- Orange Mate
- Dr. Bronner's (www.drbronner.com)

Look for them in your local health food store. The Washington Toxics Coalition reminds us to look for products with specific rather than general claims when reading "green" labels. For example, "90% biodegraded in 3 days" means more than just "biodegradable." "Contains no phosphates" is more specific than "environmentally-safe." If the product seems too good to be true, perhaps it is.

Disinfection

This is a tougher area. While it is proven that bleach and other common disinfectants kill various pathogens, more testing is needed on the alternatives. Disinfectants, whether common or alternative, will kill some pathogens but not all. Also, surfaces must be clean before disinfectants may work. Note that "sanitizers" are ranked less potent than "disinfectants" according to the EPA. Both Healthy Schools Network, and also experts in the field, point out that often disinfectants are overused, and are often not necessary if areas are routinely cleaned with soap and water.

Tea Tree Oil, Pine oil, and citrus seed extract are thought to have antibacterial and antifungal properties, but they have not been tested adequately to know which microbes they kill. Similarly, borax can be used as a laundry detergent, mold remover, and bathroom cleaner, but it is not recommended for use in the kitchen because it does not kill Salmonella or the dangerous strain of E. coli, the two strains of bacteria that cause food poisoning, according to Mothers & Others,

Natural Baby Care.

A food scientist at Virginia Polytechnic Institute discovered that a 3% hydrogen peroxide solution, the same strength available at the drug store, and plain white or apple cider vinegar, when sprayed one after the other is effective at killing germs.

It doesn't matter which you use first—you can spritz with the vinegar then the hydrogen peroxide, or vice versa (You may need two new hand sprayers.) Tests showed that pairing the two mists killed virtually all Salmonella, Shigella, and E. coli bacteria on heavily contaminated food and surfaces when used in this fashion.

Cleaners For Schools

The Janitorial Products Pollution Prevention Project, sponsored by the EPA Region 9 tells us that, "Each year about six out of every hundred professional janitors are injured by the chemicals that they use." If you are interested in switching your school to less toxic cleaners, this Janitorial Project has done trials of products at various schools throughout the country and can recommend the alternative products they rated best. Their website at www.westp2net.org/Janitorial/jp4.htm is a useful resource. It has user-friendly fact sheets on safe and effective: use of floor finishes; rest room, carpet, toilet, glass & metal cleaning; disinfecting; deodorizing; and more, as well as lists of chemicals in custodial products to avoid and why, and factsheets in Spanish.

The local business, Healthy Clean Buildings provides an award-winning "GREEN" Cleaning System which includes a nontoxic scouring paste and H2Orange2 sanitizer which is made with hydrogen peroxide and a citrus derivative. They also offer eucalyptus and tea-tree oil based cleaners, mold and mildew deterrents/removers, anti-allergen cleaners, and a reduced-toxicity disinfectant. See their ad on page 47.

A local distributor of Perfect Solution, a multi-purpose colloidal cleaning product, is TR Brokers, 105 Broadmoor Lane, Westbury, NY 11590, 516-338-8690, trbrokers@aol.com. They provide cleaning products to the Town of North Hempstead and other surrounding towns, as well as to some schools districts on Long Island. Perfect Solution's label states that it is "non-toxic, non-flammable, not a skin irritant, no phenols, no phosphates, and no carcinogens."

Other resources for schools include:

- Healthy Schools Network, "Healthier Cleaning & Maintenance: Practices and Products for Schools", 773 Madison Avenue, Albany, NY 12208, www.healthyschools.org, 518-462-0632.
- *Blueprint for a Green School*, Jayni Chase, 1996

Sources:

EPA, Environmentally Preferable Purchasing Guide "Greening Your Purchase of Cleaning Products. See www.epa.gov/oppt/ep. Washington Toxics Coalition, 4649 Sunnyside Ave N, Suite 540E, Seattle, WA 98103, 206-632-1545, info@watoxics.org Green Seal, 1001 Connecticut Ave NW, Suite 287, Washington DC 20036, 202-872-6400, greenseal@greenseal.org. See www.greenseal.org/index.html for information on their product rating standards, and how to "green" your government program.

Children's Health Environmental Coalition (CHEC), see www.checnet.org/about_healthfaq.asp

Clean & Green, The Complete Guide to Nontoxic And Environmentally Safe Housekeeping, by Annie Berthold-Bond. www.betterbasics.com. Ms. Berthold-Bond also wrote a chapter for the Healthy Schools Handbook. Call 800-229-4200 for a copy.

Vinegar and Hydrogen Peroxide as Disinfectants, by Judy Stouffer, B.S., M.S., SFO, Science News August 8, 1998; Vol. 154, Issue. 6; pg. 83-85