



Conserve O Gram

June 2003

Number 2/21

Safer Cleaning Alternatives For The Museum & Visitor Center

All parks with museum collections should have a Museum Housekeeping Plan developed by, or in consultation with a conservator. Among other recommendations, your park's Museum Housekeeping Plan should specify:

- The appropriate preventive conservation techniques and materials that curatorial staff can use on different collection items.
- The proper techniques and materials that curatorial and/or maintenance staff should use when cleaning the museum, collection storage areas, inside furnished historic structures, or any other area housing museum objects or specimens.
- The frequency that each task should be conducted.

All staff responsible for any aspect of museum housekeeping must be familiar with the park's Museum Housekeeping Plan and consistently follow all of its guidelines. This will ensure that no one will harm collections items by using inappropriate methods or products when conducting preventive conservation treatments or cleaning museum areas.

Other cleaning products used in your visitor center, curatorial offices, and other park buildings may present problems. Many common household cleaning products are hazards to both human health and the environment, not to mention your collections. Most of these

cleaning products can be purchased at any local grocery, hardware, or department store. Do not let their easy availability allow you to be indifferent about their proper use, storage, and disposal. Most household chemical products have some undesirable side effects. They might be:

- **Irritants:** affect the skin, eyes, and/or lungs. Examples include ammonia, chlorine, and petroleum distillates.
- **Toxics:** are harmful or fatal to humans if swallowed, inhaled, or absorbed through the skin. Examples include chlorine, adhesives, gasoline and other fuels, pesticides, and mothballs. Chlorine, if mixed with other chemicals or acidic substances such as ammonia, toilet bowl cleaners, drain cleaners, or vinegar will form toxic gases.
- **Flammables:** are materials that can catch fire quite easily. Examples include gasoline and other fuels, aerosol products, oil-based paints, and paint thinner.
- **Corrosives:** are acidic or alkaline substances that can burn human skin and other tissues. They can also burn and/or corrode other materials that they touch. Examples include drain cleaners, toilet bowl cleaners, and batteries.

Volatile Organic Compounds (VOCs)

Common products such as cleaning supplies, disinfectants, paints, varnishes, aerosol sprays, air fresheners, waxes, solvents, dry-cleaned clothing, hobby supplies, and fuels contain Volatile Organic Compounds (VOCs).

According to the EPA, all of these products can release organic compounds when you use them and when they are stored.

Adverse health effects of VOCs include eye, nose, and throat irritation; headaches; loss of coordination; nausea; damage to liver, kidneys, and the central nervous system. These adverse effects vary with the level of exposure, length of exposure, individual sensitivities, and other factors. The EPA notes that little data exists on the adverse effects of VOCs found in the average home. They also report that some VOCs can cause cancer in animals, and some are suspected or known to cause cancer in humans.

Volatile Organic Compounds are also hazardous to collections. Do not use cleaning products containing VOCs in museum exhibit or storage areas. Research done in the United Kingdom shows that the use of a chlorine-containing cleaning product in a museum gallery also produces high chlorine levels inside the museum cases. The elevated levels in the cases did not dissipate as rapidly as those in the room (Blades 1998).

Household Hazardous Waste

At the same time, most household chemical products are classified as household hazardous waste. These products cannot be legally (or ethically) disposed of in the trash, down the drain, or in a similar manner. Unused quantities of such products must be disposed of in accordance with EPA guidelines and your

state's laws and regulations concerning household hazardous waste. A partial list of household hazardous waste includes:

- Adhesives
- Degreasers
- Gasoline and other fuels
- Pesticides
- Aerosol Products
- Drain Cleaners
- Mothballs
- Oil-based Paint
- Stains and Varnishes
- Wood Preservatives
- Oven Cleaners

Obviously some of these products will never be used inside the museum or visitor center (fuels, oven cleaners, and oil-based paints) but others might be. In fact, almost every type of household hazardous waste is probably used by someone at your park. For information on proper disposal of household hazardous waste, contact your park's HAZMAT coordinator or your county waste program.

To ensure that you do not experience problems related to use, storage, and disposal of household hazardous waste, the EPA and state and local authorities recommend that you do not maintain a "stockpile" of such chemicals. Rather, you should only buy the amount you need for the job at hand. If you buy too much of a chemical product by mistake, keep what remains for future projects. This will eliminate the need for disposal.

Note: Some individuals can be very sensitive to certain chemical products, while others may not experience any noticeable short-term ill effects. Be sure to read all warning labels, and use any recommended personal protective equipment (PPE).

Safer Alternative Cleaners

A better alternative to using products classified as household hazardous waste is to use safer and non-toxic alternatives. With the abundance of hazardous and toxic chemicals in our environment, it makes sense to eliminate exposure to such products whenever possible. Many of these safer and non-toxic alternatives have been utilized for years, before manufactured chemical cleaners came into widespread availability. Today, various companies also manufacture biodegradable and ecologically sensitive cleaning products. Some alternatives include:

1. Soap and Warm Water

- A cotton rag or mop moistened (but not dripping) with warm soapy water can be used to clean visitor center floors, exhibit panels, floors and woodwork in historic structures (consult your SO/regional curator or a conservator to ensure that this is appropriate for your park's historic structures).
- Remove fresh stains from visitor center carpets by blotting and cleaning with a cotton rag, soap, and warm water. Vacuum when dry.
- Use a weak solution of warm water and mild soap (such as Ivory Flakes or shavings from a bar of Ivory soap) to dampen a cotton cloth to remove stubborn dirt from clear finished wood furniture (see *Conserve O Gram 7/1* for additional information).

Note: Be sure to consult your SO/regional curator or a conservator before using this

technique to ensure that you will not damage the object's finish.

2. Vinegar

- Mix equal amounts of vinegar and water in a spray bottle for use as a glass cleaner. This solution can be used to clean the exterior surfaces of glass exhibit cases, visitor center windows and restroom mirrors, and windows in historic structures. In historic structures and exhibit areas, be sure to spray the rag with the water and vinegar solution outside, and make sure to dampen the rag only. Wipe surfaces clean, but be careful not to touch any nearby woodwork.
- Mix ½ cup of vinegar with 1 gallon of warm water to clean floors and countertops in visitor centers and restrooms.

Note: Avoid vinegar for windows with UV filtering film. Use a damp rag with water and a mild detergent. Wipe dry with a soft cloth.

3. Baking Soda

- As a tub and tile cleaner.
- As a deodorizer.
- To clean stained porcelain.
- Combine baking soda with borax and lemon juice for use as a toilet bowl cleaner and disinfectant.

4. Non-Toxic Cleaning Products

- Available at hardware, grocery, and health food stores.
- These are more expensive than the homemade cleaners, but require less time because they are pre-mixed and ready to use.
- Some examples include Bi-O-Kleen®, Ecover®, and Seventh Generation®.

Note: Even safer, natural cleaning products can stain or otherwise damage museum collections. Do not use any of these products to clean collections. Museum objects should only be cleaned by a conservator or by trained staff following guidelines developed by a conservator. Use the same precautions with these products that you always employ when cleaning the inside of museums or furnished historic structures.

For more information consult:

1. King County, Washington websites:

Hazardous Household Chemicals:
<<http://www.metrokc.gov/health/hazard/hazchems.htm#why>>.

Green Cleaning:
<<http://www.metrokc.gov/health/asthma/greencleaning.htm>>.

2. Environmental Protection Agency:

Office of Solid Waste (5305W)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
(800) 424-9346

EPA Websites:

Household Hazardous Waste, Steps to Safe Management:

<<http://www.epa.gov/epaoswer/non-hw/househd/hhw.htm>>.

Household Waste Management website:

<<http://www.epa.gov/seahome/hwaste.html>>.

Sources of Indoor Air Pollution: Organic Gases (VOCs):

<<http://www.epa.gov/iaq/voc.html>>.

3. Minnesota Pollution Control Agency:

<<http://www.pca.state.mn.us/waste/hhw.html#guide>>.

4. Co-op America:

1612 K Street, NW, Suite 600
Washington, DC 20006
(800) 58-GREEN
www.greenpages.org

Co-op America's Green Pages Online lists companies that produce and/or sell environmentally friendly products, including cleaning supplies.

5. Your city or county waste management office.
6. Your park HAZMAT coordinator.

Supplies

Non-toxic, environmentally friendly cleaning supplies and other products are available at many local health/natural food stores and

supermarkets, and at select hardware and grocery stores. If your local store does not carry these items, see if they can place an order for you. You can also order safer cleaning products from:

Lifekind Products
PO Box 1774
Grass Valley, CA 95945
(800) 284-4983
www.lifekind.com

Planet Natural
1612 Gold Avenue
Bozeman, MT 59715
(800) 289-6656
www.planetnatural.com

Real Goods
360 Interlocken Blvd, Ste 300
Broomfield, CO 80021-3440
(800) 762-7325
www.realgoods.com

References

Blades, Nigel. "A Study of the Lesser Known Pollutants: Volatile Organic Compounds in Display Cases." A paper delivered at the Indoor Air Quality in Museums and Archives Conference, Glasgow, 1998.
<http://iaq.dk/iap/iap1998/1998_14.htm>.

Environmental Protection Agency and the Consumer Product Safety Commission. "The Inside Story: A Guide to Indoor Air Quality." *EPA Document # 402-K-93-007*. Washington, D.C.: Environmental Protection Agency, 1995.

Environmental Protection Agency. "Sources of Indoor Air Pollution: Organic Gases (Volatile Organic Compounds - VOCs)." <<http://www.epa.gov/iaq/voc.html>>.

Tétreault, Jean. *Airborne Pollutants in Museums, Galleries and Archives: Risk Assessment, Control Strategies and Preservation Management*. Ottawa: Canadian Conservation Institute, 2003.

Steven P. Floray
Museum Specialist
National Park Service
Museum Management Program
Washington, DC 20042

The *Conserve O Gram* series is published as a reference on collections management and curatorial issues. Mention of a product, a manufacturer, or a supplier by name in this publication does not constitute an endorsement of that product or supplier by the National Park Service. Sources named are not all inclusive. It is suggested that readers also seek alternative product and vendor information in order to assess the full range of available supplies and equipment.

The series is distributed to all NPS units and is available to non-NPS institutions and interested individuals on line at <http://www.cr.nps.gov/museum/publications/conserveogram/cons_toc.html>. For further information and guidance concerning any of the topics or procedures addressed in the series, contact NPS Museum Management Program, 1849 C Street NW (2265), Washington, DC 20240; (202) 354-2000.