

# OSHA·NIOSH INFOSHEET

## Protecting Workers Who Use Cleaning Chemicals

Workplaces, such as schools, hospitals, hotels, restaurants and manufacturing plants, use cleaning chemicals to ensure the cleanliness of their buildings. Workers who handle these products include building maintenance workers, janitors and housekeepers. Some cleaning chemicals can be hazardous, causing problems ranging from skin rashes and burns to coughing and asthma. Many employers are switching to green cleaning products because they are thought to be less hazardous to workers and the environment. This INFOSHEET provides information to employers on practices to help keep workers safe when working with cleaning chemicals, including green cleaning products.

### Potential Health Problems Caused by Cleaning Chemicals

Many factors influence whether a cleaning chemical will cause health problems. Some important factors to consider include:

- Chemical ingredients of the cleaning product;
- How the cleaning product is being used or stored;
- Ventilation in the area where the cleaning product is used;
- Whether there are splashes and spills;
- Whether the cleaning product comes in contact with the skin; and
- Whether mists, vapors and/or gases are released.

Chemicals in some cleaning products can be irritating to the skin or can cause rashes. Cleaning products that contain corrosive chemicals can cause severe burns if splashed on the skin or in the eyes.

Mists, vapors and/or gases from cleaning chemicals can irritate the eyes, nose, throat and lungs. Symptoms may include burning eyes, sore throat, coughing, trouble breathing and wheezing. Chemicals in some cleaning products can cause asthma or trigger asthma attacks. Some cleaning products contain hazardous chemicals that can enter the body through skin contact or from breathing gases into the lungs. **Mixing cleaning products that contain bleach and ammonia can cause severe lung damage or death.**

### Choosing Safer Cleaning Chemicals: Cleaners, Sanitizers or Disinfectants

The Environmental Protection Agency (EPA) defines cleaners, sanitizers and disinfectants as follows:

*Cleaners* remove dirt through wiping, scrubbing or mopping.

*Sanitizers* contain chemicals that reduce, but do not necessarily eliminate, microorganisms such as bacteria, viruses and molds from surfaces. Public health codes may require cleaning with the use of sanitizers in certain areas, like toilets and food preparation areas.

*Disinfectants* contain chemicals that destroy or inactivate microorganisms that cause infections. Disinfectants are critical for infection control in hospitals and other healthcare settings.

Cleaners, sanitizers and disinfectants serve different purposes, and it is important to choose the least hazardous cleaning chemical that will accomplish the task at hand. Before purchasing cleaning products, determine whether or not sanitizing or disinfecting is necessary. If sanitizing or disinfecting is not required, then choose a cleaner. In general, disinfectants and sanitizers are more hazardous than cleaners.

If sanitizing or disinfecting is necessary, be sure that the product purchased is effective for the microorganisms being targeted. EPA regulates sanitizers and disinfectants (termed "antimicrobial pesticides") and is a useful resource. For further information, see EPA's webpage "What Are Antimicrobial Pesticides?" ([http://www.epa.gov/oppad001/ad\\_info.htm](http://www.epa.gov/oppad001/ad_info.htm)).

### Choosing Safer Cleaning Chemicals: Green Cleaners

Many employers and building managers are purchasing "green" cleaning chemicals with the expectation that green cleaning products are safer for workers and the environment. However, placing the word "green" in a name or on a bottle does not

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ensure that a chemical is safe. Employers should review the cleaning chemicals they purchase, including green cleaning products, to understand their health and safety hazards. Employers should choose the least hazardous cleaners.

Independent organizations are now certifying chemicals, including cleaners, as “green.” *Certified green cleaners* must meet specific criteria as defined by the certifying organization. Employers may find information from these certifying organizations helpful when purchasing cleaning chemicals. Some certifying organizations are listed under the Resources section below. The EPA webpages “Cleaning” (<http://www.epa.gov/epp/pubs/products/cleaning.htm>) and “Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers” (<http://epa.gov/epp/pubs/cleaning.htm>) provide comprehensive guidance for purchasers of cleaning products.

### **Choosing Safer Cleaning Chemicals: Material Safety Data Sheets**

When choosing safer cleaning chemicals, employers can learn much from **Material Safety Data Sheets** (MSDSs). Employers must obtain and maintain MSDSs for all hazardous cleaning products and chemicals that they use. MSDSs must be readily accessible to workers. Employers can use the information contained in the MSDSs to ensure that workers are properly protected. MSDSs include the following important information:

- Hazardous chemical ingredients;
- Symptoms and health problems that may be caused by the chemical ingredients;
- First-aid measures if workers are exposed;
- Recommended personal protective equipment, such as gloves, safety goggles or respirators; and
- Proper procedures for cleaning up spills.

### **Safe Work Practices When Using Cleaning Chemicals**

Employers must provide safe working conditions for employees using cleaning chemicals. When cleaning chemicals are hazardous, employers must train workers on safe work practices for using these chemicals. Safe work practices when using cleaning chemicals include the following:

- Warning workers not to mix cleaning products that contain bleach and ammonia;
- Making sure that workers know which cleaning chemicals must be diluted and how to correctly dilute the cleaners they are using;

- Thoroughly reviewing and training workers on the use, storage and emergency spill procedures for cleaning chemicals;
- Reviewing the proper protective equipment needed, such as gloves and goggles, and providing the proper protective equipment to the workers using the cleaning product;
- Ensuring that all containers of cleaning products and chemicals are labeled to identify their contents and hazards;
- Operating ventilation systems as needed during cleaning tasks to allow sufficient air flow and prevent buildup of hazardous vapors; and
- Providing workers with a place to wash up after using cleaning chemicals.

### **Worker Training**

Chemicals pose a wide range of health and safety hazards. OSHA’s Hazard Communication standard (29 CFR 1910.1200) is designed to ensure that information about these hazards and associated protective measures is communicated to workers. Worker training must be provided if the cleaning chemicals are hazardous. This training must be provided BEFORE the worker begins using the cleaner. Required training under the OSHA Hazard Communication standard includes:

- Health and physical hazards of the cleaning chemicals;
- Proper handling, use and storage of all cleaning chemicals being used, including dilution procedures when a cleaning product must be diluted before use;
- Proper procedures to follow when a spill occurs;
- Personal protective equipment required for using the cleaning product, such as gloves, safety goggles and respirators; and
- How to obtain and use hazard information, including an explanation of labels and MSDSs.

The following are important issues to be discussed with workers during training:

- Never mix different cleaning chemicals together. Dangerous gases can be released.
- Cleaning chemicals should not be used to wash hands. Wash hands with water after working with a cleaning chemical, especially before eating, drinking or smoking.

***Employers must provide training to workers at a level and in a language and vocabulary that they can understand.***

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## Better Ways to Clean

Employers should note recent advances in safe cleaning practices and the availability of modern cleaning equipment that minimizes the use of chemicals. Practices and equipment to consider include:

- Walk-off mats placed inside and outside of entryways (to prevent dirt from being tracked into the building);
- Microfiber mops, cloths and dusters;
- High-filtration HEPA vacuums;
- Walk-behind hard floor auto-scrubbers;
- Hands-free mops; and
- Chemical-free cleaning systems.

Building owners and planners should take building cleaning into consideration when designing new buildings, remodeling old buildings and choosing materials, such as flooring. See NIOSH's Prevention through Design (PtD) program (<http://www.cdc.gov/niosh/topics/PtD>) and EPA's Design for the Environment (DfE) (<http://www.epa.gov/dfe>) for more information.

## Resources

### The Occupational Safety and Health

**Administration (OSHA)** provides additional information on the webpage "OSHA Assistance for the Cleaning Industry" (<http://www.osha.gov/dcsp/products/topics/cleaningindustry/index.html>). OSHA's Safety and Health Topics webpage "Hazard Communication" (<http://www.osha.gov/dsg/hazcom/index.html>) has information on OSHA's Hazard Communication standard. OSHA's guidance document, Chemical Hazard Communication (<http://www.osha.gov/Publications/osha3084.pdf>), provides information on putting together a comprehensive chemical hazard communication program. OSHA has guidance on personal protective equipment (<http://www.osha.gov/Publications/osha3151.html>), including the types of gloves recommended for exposures to different chemicals.

**The National Institute for Occupational Safety and Health (NIOSH)** leads a national initiative called Prevention through Design (PtD) (<http://www.cdc.gov/niosh/topics/PtD>) that addresses workplace safety and health during the design and planning of workplaces, materials and equipment in order to prevent or minimize hazards and risks.

**The Environmental Protection Agency (EPA)** has standards for safer cleaning products under the EPA's Design for the Environment (DfE) Safer Product Labeling Program (<http://www.epa.gov/dfe>). A DfE label on a cleaner indicates that the cleaner meets the EPA's safety standards.

- The DfE Safer Product Labeling Program's list of certified products (<http://www.epa.gov/dfe/pubs/projects/formulat/formpart.htm>)

Other EPA resources:

- Cleaning (<http://www.epa.gov/epp/pubs/products/cleaning.htm>)
- Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers (<http://www.epa.gov/epp/pubs/cleaning.htm>)
- What Are Antimicrobial Pesticides? ([http://www.epa.gov/oppad001/ad\\_info.htm](http://www.epa.gov/oppad001/ad_info.htm))

### Independent organizations that certify green cleaners:

- Green Seal ([www.greenseal.org](http://www.greenseal.org))
- Ecologo ([www.ecologo.org](http://www.ecologo.org))

### Other helpful resources:

- See the New Jersey Department of Health and Senior Services' Controlling Chemical Exposure Industrial Hygiene Fact Sheets (<http://www.nj.gov/health/surv/documents/i/hfs.pdf>) for more information on worker safety when working with chemicals.
- The Department of Health and Human Services provides an online Household Products Database (<http://hpd.nlm.nih.gov/index.htm>) containing health and safety information on many household products, including cleaners.
- The Janitorial Products Pollution Prevention Project (<http://wsppn.org/studies/janitorial/fact-sheets>) has fact sheets on specific cleaning tasks, such as carpet cleaning, metal cleaning and toilet cleaning and has a cleaning fact sheet in Spanish.
- Informed Green Solutions (<http://www.informedgreensolutions.org>) has a number of fact sheets and publications on safe cleaning practices.
- A 2002 report entitled "Cleaning for Health: Products and Practices for a Safer Indoor Environment" (<http://www.informinc.org/cleanforhealth.php>) published by INFORM also provides good information.

## OSHA Educational Materials

OSHA has an extensive publications program. For a listing of free items, visit OSHA's web site at [www.osha.gov/publications](http://www.osha.gov/publications) or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, N.W., N-3101, Washington, DC 20210. Telephone (202) 693-1888 or fax to (202) 693-2498.

## Contacting OSHA

To report an emergency, file a complaint or seek OSHA advice, assistance or products, call (800) 321-OSHA (6742) or contact your nearest OSHA regional, area, or State Plan office; TTY: 1-877-889-5627.

## Contacting NIOSH

To receive documents or more information about occupational safety and health topics, please contact NIOSH: 1-800-CDC-INFO (1-800-232-4636); TTY: 1-888-232-6348; e-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) or visit the NIOSH web site at [www.cdc.gov/niosh](http://www.cdc.gov/niosh).

**This guidance document is not an OSHA standard or regulation but contains recommendations that are advisory in nature and intended to assist employers in providing a safe and healthful workplace. The mention of any non-governmental organization or link to its web site in this guidance does not constitute an endorsement by NIOSH or OSHA of that organization, its products or services or web site.**

For more information:

