



W Safer Cleaning, Sanitizing and Disinfecting Strategies to Prevent Infection Transmission

Proper cleaning and disinfecting are important for reducing the spread of infectious disease. This fact sheet provides best practices for cleaning, sanitizing and disinfecting surfaces to prevent the spread of disease while minimizing harmful chemical exposures. These practices focus on the workplace, however they can be applied in any setting. Consult the U.S. Centers for Disease Control and Prevention and the U.S. National Institute for Occupational Health and Safety for the most current information.

► **Remember:** When possible for handwashing and cleaning surfaces, using soap and water is always the best option.

Why are we talking about safer practices?



Hazardous chemicals are common in cleaning, sanitizing, and disinfecting products.

People using these products, and people in the spaces where they are used, can get sick or develop illnesses, including asthma. Others harm reproductive health or may cause cancer if too much exposure occurs. Some damage skin or other body systems. For example, custodians using cleaning products and disinfectants may suffer from work-related asthma due to exposure on the job.



Safer options are available.

Look for Safer Choice, Green Seal®, Ecologo® and Design for the Environment (DfE) labels on products.



These labels are on environmentally preferable cleaning products and disinfectants that have a lesser or reduced effect on human health and the environment. These labels have strict requirements and can help you avoid chemicals that have negative impacts.

Key Terms

Cleaner

Removes germs, dirt, and impurities from surfaces or objects. Works by using soap/detergent, water and friction to physically remove dirt and germs from surfaces. Cleaning before disinfecting reduces spreading infection more than disinfecting alone.

Sanitizer

Reduces germs on surfaces to levels considered safe for public health (usually 99.99%). Products must be EPA registered.

Disinfectant

Destroys almost all infectious germs, when used as the label directs on a surface. No effect on dirt, soil, or dust. Should be used where required by law, in high-risk and high-touch areas, or in case of infectious disease. Products must be EPA registered.

Decision Making and Selecting

Disinfectants and sanitizers are regulated as pesticides by the US EPA. If the Design for the Environment (DfE) label is not on the product, use disinfectants and sanitizers that contain ethanol, isopropanol (isopropyl alcohol), hydrogen peroxide, L-Lactic acid, or citric acid. During use of chemicals, ventilate the space with outside air by opening doors and windows, or by bringing in outside air with your air handling system.

Refer to the San Francisco Department on the Environment resource, listed at the end of this fact sheet, for additional guidance on disinfectant ingredients.



Safer Disinfectant Options

Ethanol, isopropanol (isopropyl alcohol)

Hydrogen Peroxide

L-Lactic Acid, Citric Acid

The EPA Design for the Environment criteria for disinfectants/sanitizers is used for defining safer chemicals.

Peracetic acid is one ingredient on the DfE that is not generally recommended.

“Peracetic acid is sold in solution as a mixture with acetic acid and hydrogen peroxide to maintain its stability, but is highly corrosive and exposure to it can severely irritate the eyes, skin and respiratory system.”

Peracetic acid is typically sold in concentrations of 1 to 5 percent and is diluted before use in food and health-care industries. Try to avoid products containing peracetic acid.



Peracetic acid

What Else is Important for Product Selection?

- ✓ Cleaning is always the first step. Disinfectants and sanitizers do not work on dirty surfaces.
- ✓ Cleaning is different from sanitizing and disinfecting (see the box on page 1 for definitions). Disinfectants are widely misused and overused, including improper concentrations and solutions. More is not necessarily better—often, cleaning is all that’s needed.
- ✓ Personal protective equipment (PPE), such as gloves, may be needed. Refer to the product label or Safety Data Sheet to see if specific protective measures are recommended. You will need to consider if the product is being sprayed into the air (which makes it easier to inhale) or placed on cloths (which can cause skin exposure), as well as how concentrated the product is and if it should be diluted.
- ✓ Dwell or contact time matters for sanitizers and disinfectants. They work only if left on a surface for specified times. See the manufacturers’ instructions on the label.
- ✓ Use the right product for the surface! Refer to the label—not all surfaces are the same. For example, what works on fabric may not work on stainless steel. Some products work on bacteria but not viruses. Some must be diluted, such as bleach. Some can be used in sprays; others cannot. Is it certified for your purpose by EPA or another reputable body?



Best Practices for Safe and Effective Cleaning and Disinfecting

Develop a Plan

This applies all the time, whether it's a pandemic or not. Develop and maintain a set of written standard operating procedures for cleaning and criteria for when to sanitize or disinfect. This should include schedules for routine cleaning operations and activities performed periodically.

1. **Start by asking: "Do I need to disinfect?"** If not, use fragrance free soap/detergent and water or an all-purpose cleaner with Safer Choice, Green Seal, Cradle to Cradle, or Ecologo labels. Soap and water, with microfiber cloths or mops, gets rid of 99% of bacteria.
2. **Routinely clean all frequently touched surfaces.** These surfaces include workstations, counter tops, light switches, railings, doorknobs, and equipment (such as steering wheels and machinery). Use cleaning agents regularly used in these areas, following directions on the label. Select products with Safer Choice, Green Seal, or Ecologo labels. Use a clean surface of the cloth to prevent cross contamination. Alcohol wipes can be used on electronics.
3. **Select a disinfectant or sanitizer that contains fewer hazardous ingredients.** If you determine disinfection is necessary, use products registered by the U.S. Environmental Protection Agency (EPA) for the pathogen of concern. Lists of these products can be found at: <https://www.epa.gov/pesticide-labels/dfe-certified-disinfectants>. US EPA Design for the Environment (DfE) products are readily available.

Avoid sodium hypochlorite (bleach) and quaternary ammonium compounds, if possible; these ingredients can cause asthma. Let disinfectants stay glistening wet on the surface or air dry for the right dwell or contact time on the product's label instructions. Otherwise, resistant germs will remain and grow, which can lead to "superbugs."

4. **Provide information and training.** Remember, employers must ensure workers are trained on the hazards of the cleaning chemicals used in the workplace in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200).

People need to know the right way to use the products and symptoms of possible harm. Protective equipment—including gloves—needs to be appropriate for the product. If information isn't on the safety data sheet, call the manufacturer for specific glove materials, or ask an occupational health specialist.

Use accepted best practices and technology for cleaning. For example, perform restroom cleaning from high to low, toward the doorway, and with dry cleaning tasks performed prior to wet cleaning tasks.

5. **Evaluate.** Evaluate the plan. Get feedback from people using the products and from those in the spaces where they are used.



Additional Resources for Cleaning and Disinfecting

Cradle to Cradle Certified: <https://www.c2ccertified.org>

EcoLogo/UL: <https://www.ul.com/resources/ecologo-certification-program>

Green Seal: <http://www.greenseal.org/>

Handwashing to Prevent Illness at School (proper handwashing video)

<https://www.doh.wa.gov/CommunityandEnvironment/Schools/EnvironmentalHealth/handwashing>

Hazards of Using Bleach: http://www.responsiblepurchasing.org/purchasing_guides/cleaners/index.php

Healthcare Without Harm:

<https://noharm-europe.org/articles/news/europe/promoting-safer-disinfectants-healthcare-sector>

Healthy Schools Campaign:

<https://www.healthygreenschools.org/2020/03/how-to-safely-disinfect-for-coronavirus/>

Informed Green Solutions: <https://www.informedgreensolutions.org/>

Responsible Purchasing Network: <http://www.responsiblepurchasing.org/>

San Francisco Department of the Environment: <https://www.sfapproved.org/microfiber-cleaning-products>

US EPA Design for the Environment (DfE): <https://www.epa.gov/pesticide-labels/dfe-certified-disinfectants>

US EPA List of Disinfectants for Use Against SARS-CoV-2:

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

US EPA's Safer Choice: <https://www.epa.gov/saferchoice>

Women's Voices for the Earth: <https://www.womensvoices.org/safe-cleaning-products/>

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1. California Work-Related Asthma Prevention Program (<https://www.cdph.ca.gov/Programs/CCDC/DEODC/OHB/WRAPP/Pages/WRAPP.aspx>)

2. Bechtold K., Versatile and vexing: the many uses and hazards of peracetic acid, The Synergist, AIHA, December 12, 2016 (<https://synergist.aiha.org/201612-peracetic-acid-uses-and-hazards>)